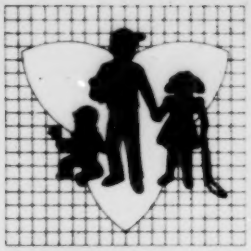

Child Care

Factors Related to Quality in Child Care:

Annotated Bibliography

Ministry of Community and Social Services
Ontario

March 1991

FACTORS RELATED TO QUALITY IN CHILD CARE:

ANNOTATED BIBLIOGRAPHY

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by

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PREFACE

This annotated bibliography is provided as a resource to accompany **Factors Related to Quality in Child Care: A Review of the Literature**, which has recently been circulated by the Ministry of Community and Social Services. Both documents were commissioned as part of a comprehensive review of the factors which have been found by research to be associated with child well-being and development in child care.

The purpose of this bibliography is to provide practitioners and researchers with more detailed information about research studies which have explored the issue of quality in child care. Only those studies directly related to this issue have been included. The research studies are presented in alphabetical order on the basis of the senior (or only) author's name.

Most of the studies involved standardized instruments such as the Early Childhood Environment Rating Scale (Harms & Clifford, 1980) or the Peabody Picture Vocabulary Test (Dunn, 1979). The full citation for these measurement instruments is provided in a bibliography which begins on page 130. At the beginning of each write-up there is a short section called "issues" which identifies the main topics addressed by the study.

Anderson, C.W., Nagle, R.J., Roberts, W.A., & Smith, J.W. (1981) **Attachment to substitute caregivers as a function of center quality and caregiver involvement.** *Child Development, 52, 53-61.*

Country of origin - United States

Issue

The impact of centre physical quality and extent of caregiver involvement on the child's emotional security and exploratory behaviour in a strange situation.

Subject sample

35 children from white, middle-class families ranging in age from 19-42 months (mean = 31 months), all of whom had been in the continuous daily care of the same caregiver at the same centre for at least 8 months. The caregivers were classified as follows:

- high involved from high physical quality centre (10)
- high involved from low physical quality centre (8)
- low involved from high physical quality centre (8)
- low involved from low physical quality centre (9)

Program sample

Sub-sample of 17 centres from 25 picked out of a local telephone directory, none were research or university administered or part of any other experimental project. All 25 were screened for quality of physical setting and divided into high, medium, and low quality. Only centres in the high or low quality categories were used. Centres classified as high quality had varied and age-appropriate equipment, attractive physical space, planned daily routines and learning activities. Centres classified as low quality had limited equipment, poor or inappropriate physical space, little or no planned activities. There was no significant difference between the "high" and "low" quality groups on caregiver-to-child ratio (all approximately 1:12).

Measures

- assessment of physical quality (Peterson, 1977). This investigates the appearance and appropriateness of the physical setting, adequacy of equipment, existence of structured program, and the extent to which the facilities and program are child-centred;
- observations during eight five-minute intervals of free play on two different days with the focus on whether or not the caregiver was interacting with the children and whether the interaction was positive or negative. Inter-observer reliability was 95%.

Procedure

Used an adaptation of the Strange Situation (Ainsworth & Wittig, 1969) in a laboratory situation which involved four episodes: child and caregiver; child, caregiver, and stranger; child and stranger; then child and caregiver. Two trained observers, who did not know the category in which the caregiver was classified, observed behind a one-way mirror and coded the child's contact seeking with the adult, interaction with the adult, exploratory behaviour, and response to separation.

Findings

- children with "involved" caregivers showed significantly more contact seeking with the caregiver ($p < .002$) and more exploration ($p < .005$) than did children with "low involved" caregivers regardless of whether the caregiver was from a high or low quality setting;
- children with "involved" caregivers sought contact and interacted more with the caregiver than the stranger ($p < .005$) while children with "low involved" caregivers sought contact and interacted more with the stranger ($p < .005$);
- children with "involved" caregivers displayed higher levels of exploration and location change in the presence of the caregiver than in the presence of the stranger ($p < .05$). Children with "low involved" caregivers showed little difference in exploration or location change in the presence of the stranger versus the caregiver; and
- the impact of the physical setting was not statistically significant. Children from centres classified as poor quality showed the least exploratory behaviour in the first episode but those with "involved" caregivers increased their exploration in episode four. Children from "poor" quality centres with "uninvolved" caregivers did not.

Conclusion

"Involved" caregivers encourage emotional security which, in turn, encourages exploratory behaviour.

Strengths

- recognized that parent education was higher in some centres and used a statistical procedure to factor out the influence of this variable

Weaknesses

- o caregivers were categorized using a non-standardized scale and no information is given as to how the judgement was made;
- o the Strange Situation is considered to be a highly artificial way of measuring child attachment to an adult; and
- o the caregiver sample in each category is small.

Arnett, J. (1989) **Caregivers in day care centres: does training matter?** *Journal of Applied Developmental Psychology, 10, 541-552.*

Country of origin - Bermuda

Issue

What is the impact of no training versus four different amounts of training on caregivers' childrearing attitudes and their behaviour towards the children in their care.

Subject sample

59 caregivers, all female, all but 14 black, all with high school education and all with experience as child care providers (mean = 5 years). Groups were:

- o no formal child care training (N=14);
- o first year of the two-year child care training course offered by Bermuda College (N=12);
- o both years of the two-year Bermuda College program (N=16); and
- o four-year college education in early childhood education or similar program in the United States or the United Kingdom (N=17).

Program sample

Twenty-two of the 23 child care centres on Bermuda.

Measures

- o Parental Modernity Scale (Schaefer & Edgerton, 1981), this is essentially a measure of authoritarianism;
- o two 45 minute direct observations of each caregiver by different observers using a 25 item scale developed by the author. Items included: encourages the child to try new experiences; seems enthusiastic about the children's efforts; and seems unnecessarily harsh. Inter-observer agreement was 80% or better.

Data analysis

All the findings were examined using the three covariates of age, level of training, and experience. The findings from the observation were combined into four factors: Positive Interaction (e.g. warmth and enthusiasm with children, appropriate communication); Punitiveness (behaviour that was hostile, threatening, or harshly critical); Detachment (the extent to which the caregiver was

uninvolved with the children and appeared to be uninterested in them); and Permissiveness (a lax approach to the children's behaviour).

Findings

- as level of training increased, the level of authoritarianism decreased ($p < .01$). Caregivers who had completed some or all of the Bermuda College program were less authoritarian in childrearing attitudes as measured by the scale than those without any training but more authoritarian than caregivers with four years' training;

- caregivers with one or two years of the Bermuda College course were rated higher than those without training on Positive Interaction ($p < .01$). Those with four years' training, in turn, were rated higher than those with some training ($p < .01$). There was no significant difference between caregivers with one or two years training;

- caregivers with one or two years of the Bermuda College program were rated as lower on Detachment than those with no training ($p < .05$) and those with four years' training were lower than the other three groups of caregivers ($p < .01$);

- for Punitiveness, caregivers with four years' training were rated lower than caregivers in the other three groups ($p < .05$). There was no significant difference between caregivers with one or two years of the Bermuda College program; and

- there was no significant difference among the four groups on Permissiveness.

Conclusion

Training does make a difference in both attitude and actual behaviour. The author hypothesizes that the finding of little difference between caregivers with one or two years training is a function of the Bermuda College program. The first year, comprised of courses in child development and in communication, would be expected to impact on attitude and behaviour. The courses in the second year of the Program, namely: health, nutrition, and preschool curricula, would not be expected to impact on caregiver's interaction with children.

Strengths

- the author factored out age and experience during the analysis. Therefore, it is possible to feel confident that the observed differences are due to training.

Weakness

- the study did not use a standardized observation scale.

Atten, D.W., & Milner, J.S. (1987) **Child abuse potential and work satisfaction in day care employees.** *Child Abuse and Neglect, 11, 117-123.*

Country of origin - United States (North Carolina)

Issue

To what extent is there a relationship between potential for physical abuse of children in their care and the work satisfaction of employees in child care centres.

Subject sample

Original sample was 228 child care centre employees, 9 subjects withdrew after testing, 67 completed questionnaires were rejected because they were incomplete (6) or had elevated "lie scores" (61). The final sample was 152, of these:

- 25 from level 1 centres. These are centres which meet the state's minimum standards for state subsidy;
- 55 from level 2 centres. These are centres which meet minimum standards plus additional requirements. In this study, they were between level 1 and "superior" level 2 centres in terms of probable quality; and
- 72 from "superior" level 2 centres (so designated by the North Carolina State Office of Day Care).

There was no significant difference in educational level among the three groups of caregivers.

Program sample

Forty child care centres. There apparently was no difference in standards for caregiver training between level 1 and level 2 centres. However, there were more stringent standards for level 2 centres in regard to square footage per child, caregiver-to-child ratio, qualifications of the director, number of different activity areas, number of age-appropriate children's activities, and presence of operational and personnel policies.

Measures

- Child Abuse Potential Inventory (Milner, 1986). A longitudinal predictive validity study found that elevated scores are significantly related to later physical child abuse ($p < .0001$).* The instrument's lie scale has been found to successfully detect conscious deception by persons filling out the inventory questionnaire; and

- o Work Satisfaction Scale developed for this study and seeking the worker's feeling of satisfaction with the quality of supervision received, the relevance of training for the job, pay, opportunity for career advancement, own ability to handle the children, ability to handle work-related stress, clarity of job performance expectations, and overall job satisfaction.

Procedure

The inventory and questionnaire were administered to caregivers on a voluntary basis. Each was given a post-card to send into the researchers if they subsequently decided they did not wish to participate.

Findings

- o only two items on the Work Satisfaction Scale were associated with elevated scores on the Child Abuse Potential Inventory, these were:

- clarity of job expectations ($p < .001$)

- overall job satisfaction ($p. < .01$)

- o mean abuse scores** for each group were:

- subjects from superior centres = 75.6

- subjects from other level 2 centres = 85.2

- subjects from level l centres = l06.8

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* Milner et al. (l984) Predictive validity of the Child Abuse Potential Inventory. Journal of Consulting and Clinical Psychology, 52, 879-884.

** A higher score means a greater potential for abuse.

Strengths

- the references cited for the Child Abuse Potential Inventory indicate that it has been well validated on populations such as parents.

Weaknesses

- the Work Satisfaction Scale is not a standardized instrument. Also, a number of items appear to be more related to personality or emotional adjustment, e.g. ability to handle work-related stress, than to job satisfaction; and

- 43.2% of the level l employees' questionnaires were rejected compared to 27.4% of subjects from level 2 centres. This difference may have had an impact on the findings when the three groups were compared

Berk, L. (1985) **Relationship of caregiver education to child-oriented attitudes, job satisfaction, and behaviors towards children.** *Child Care Quarterly, 14(2), 103-129.*

Country of origin - United States

Issue

The relationship between caregiver education (high school diploma only or two or more years of college) and child-oriented attitudes, job satisfaction, and behaviour towards the children in their care.

Subject sample

37 white caregivers employed in child care centres serving 3 to 5 year olds, most of whom were middle class. Sixteen caregivers were employed in private, for-profit centres and 21 in community-based non-profit programs. The sample included 12 out of the 13 centres in one town. The centre not included declined to participate. All subjects were in the role of head teacher for a group. Their educational levels were high school diploma only (N=8) and two or more years of college (N=29).

Measures

- a standardized coding system for observing caregiver behavior (Prescott et al., 1967). The categories included: communication with an individual child; communication with a group; the provision of encouragement or guidance; and restrictive behaviour;
- the Minnesota Teacher Attitude Inventory (Cook et al., 1951) modified to apply to child care centres. This instrument focuses on attitudes towards children, teacher views of punishment, and general attitudes about teacher-child relationships; and
- the short form of the Minnesota Satisfaction Questionnaire (Vocational Psychology, 1963). This measures job satisfaction through questions about working conditions, satisfaction with pay, satisfaction with employee policies, and the individual's perception of internal rewards associated with the job.

Procedure

Each caregiver was observed between 9 and 10 am and between 11 am and noon on two separate days, i.e. two one-hour periods, each on different days.

Data analysis

The author used a one-way analysis of variance to compare different levels of training and to separate out the effect of a child care related major among caregivers with two years of college.

Findings

- a comparison of caregiver behaviour between for-profit and non-profit centres found that the only difference was in neutral behaviour (e.g. neutral information exchange) with the caregivers from for-profit programs showing a higher incidence of neutral behaviours;

- high scores on the Minnesota Teacher Attitude Inventory were associated positively with responsive caregiver behaviour (e.g. encouragement, direction), behaviour which encouraged development of the child's verbal skills, and negatively with restriction and manipulative guidance;

- job satisfaction was negatively correlated with restrictive behaviour with the children and positively correlated with encouragement, provision of indirect guidance, and behaviours which facilitate the child's verbal development ($p < .01$)

- college educated caregivers provided larger amounts of responsive encouragement, more suggestions, and showed behaviours to facilitate children's verbal skill development three times more frequently than caregivers with only a high school diploma. Caregivers who did not have any college education showed more restrictive behaviour than those who did ($p < .01$);

- there was no significant difference between the groups on child oriented attitudes or job satisfaction; and

- there was no statistical difference in behaviours between the college educated caregivers who had child care related training and the college educated group which did not.

Weakness

- there were only 5 caregivers who had college education without child care related training. This group is so small that atypical behaviour by a couple of members could skew the results.

Biemiller, A., Avis, C., & Lindsay, A. (1976) **Competence supporting aspects of day care environments.** *Paper presented at the Canadian Psychological Association Convention, Toronto, June, 1976. Available at the Child Care Research and Resource Unit at the University of Toronto.*

Country of origin - Canada (Ontario)

Issue

What difference does variation in caregiver-to-child ratio make to caregiver and child interactions.

Subject sample

Six children, age 22-26 months, from each of two centres. Both groups were matched for age and gender.

Program sample

Two centres, one was part of a student training program and had a caregiver-to-child ratio of 1:3 plus sources of funds in addition to parent fees. The other was a private centre, with a caregiver-to-child ratio of 1:6 and totally dependent on parent fees.

Measures

- o videotaping with coding using the Human Interaction Scale (White & Watts, 1973). Adult-child interactions were coded using categories such as: highly intellectual activity (e.g. specific efforts to facilitate verbal, symbolic, or spatial learning); non-intellectual activities (e.g. activities unlikely to promote cognitive gain, such as routine care); and social.

Procedure

Each child was observed for a total of 45 minutes spread over several days and involving different times of the day.

Findings

- o the centre with the more favourable ratio provided structured activities to 2 or 3 children with a stress on cognitive development. The other centre's activities involved groups of 10 - 12 and little intellectual activity;
- o the children in the centre with the more favourable ratio received 167% more adult-individual child interaction than children in the other centre;

- a greater amount of time was spent in maintenance activities in the centre with a ratio of l:3 than in the centre with a ratio of l:6;

- an average of 60 minutes a day was spent in "highly intellectual activities" in the centre with the more favourable ratio versus 39 minutes a day in the other centre; and

- the caregivers in the centre with the l:3 ratio made more use of teaching (9 minutes versus l minute), facilitation (35 versus l6 minutes), and observation (9 minutes versus l minute) than did the caregivers in the other centre.

Strength

- used videotaping and then coded, thereby providing an opportunity to re-run the sequence if there was uncertainty about the coding.

Weaknesses

- there is no information about staff training in the two centres. Since one centre was a student training program, there may have been a significant difference in full-time staff training and this could have contributed to the findings; and

- the centre sample is small, this makes the study vulnerable to differences specific to the two programs and not necessarily reflective of differences in ratio.

Bjorkman, M.S., Poteat, G.M., & Snow, C.D. (1986) **Environmental ratings and children's social behavior: Implications for the assessment of day care quality.** *American Journal of Orthopsychiatry, 56(2), 271-277.*

Country of origin - United States

Issue

The impact of the quality of the child care program on the children's social behaviour.

Subject sample

Ten centres assessed on the Early Childhood Environmental Rating Scale (Harms & Clifford, 1980). The two with the highest scores (166 and 181) were selected as the "high" quality sample and the two with the lowest scores (109 and 110) were selected as the "low" quality sample. Caregiver-to-child ratio is reported as approximately 1:12 in each of the four classrooms. Ten four-year olds from each centre were randomly selected as subjects. There were an equal number of girls and boys in each group. According to the authors, the "majority" of the children had attended the same centre on a full-time basis for at least a year.

Measures

- the Early Childhood Environmental Rating Scale. All ratings were done by two people and inter-rater agreement varied from 92-98%; and
- a behavioural observation scale developed for this study to code social interaction with peers, social interaction with adults, solitary play, group instruction, solitary academic activity, non-interaction, positive social behaviour, and negative social behaviour. Different raters who did not know the centre's ECERS score observed the children with inter-observer agreement being 75-93%.

Procedure

Each child was observed for a total of six ten-minute sessions over a four week period.

Findings

- males (but not females) in "high quality" centres engaged in more social positive behaviour and spent more time interacting with teachers than did males or females in "low quality" centres (not significant);

- females in "low quality" centres showed higher rates of positive behaviour than did females in "high quality centres" ($p < .065$); and

- males in "high quality" centres had significantly higher rates of non-interaction ($p < .005$) but significantly lower rates of solitary play ($p < .015$).

Weakness

- the variations in the ECERS scores were most pronounced in subscales measuring language reasoning, fine/gross motor development, and creative activity. There was little difference in subtest scores related to social development. This may explain the relatively little difference in the children's social behaviours found in this study.

Black, R.E., Dykes, A.C., Anderson, K.E., Wells, J.G., Sinclair, S.P., Gary, G.W., Hatch, M.H., & Gangorosa, E.J. (1981) **Handwashing to prevent diarrhea in day care centres.** *American Journal of Epidemiology, 113 (4), 445-451.*

Country of Origin - United States

Issue

The impact of rigorously enforced child and caregiver handwashing.

Subject sample

116 non-toilet trained children, age 6 - 30 months.

Program sample

Four child care centres, all part of a national chain and all comparable in building design, number of staff, age and racial composition of children, total number of children, and number of children under age 3. According to the authors, the four centres also had similar diapering and toilet facilities.

Measures

- baseline data on the incidence of diarrhea were collected on a daily basis for two months along with observation of the frequency of caregiver and child handwashing. Caregiver report of diarrhea was confirmed by one of the authors through examination of the child's diaper and a stool swab was done for bacterial analysis; and
- after the hand washing procedure was rigorously enforced, there was continued data collection as described above.

Procedure

The handwashing routine was instituted in two of the centres while the other two acted as controls. Employees were required to wash their hands after arrival at the centre, before handling food, after changing a diaper, after helping a child to use the toilet, or after using the toilet themselves. The children's hands were washed when they arrived at the centre, were diapered, used the toilet, and before meals. The hand washing routine was monitored by the investigators.

Findings

- during the baseline period the incidence of diarrhea (calculated by dividing the number of new episodes of diarrhea by the number of children for at least 2 of the 5 days in that week) was higher at the two experimental centres; and

- during the study period, diarrhea among the children age 6 - 18 months in the two experimental centres was significantly lower than at the two control centres ($p < .001$). The incidence among the older children was also lower, but not at a statistically significant level.

Strengths

- good procedure to determine whether or not the child had diarrhea and good definition of a new episode of diarrhea; and

- the two control and two experimental centres appear to have been very similar in areas such as building design, toiletting facilities, and caregiver-to-child ratio.

Weakness

- no follow-up to determine if the improvements continued after the investigators ceased monitoring the implementation of the handwashing routine.

Carew, J. (1980) **Experience and the development of intelligence in young children at home and in day care.** *Monographs of the Society for Research in Child Development, 45 (6-7, Serial No. 187).*

Country of origin - United States (Massachusetts)

Issue

What is the relationship between the everyday experiences of children in centre-based care and their intellectual development. (Note: the study also looks at the development of children reared solely at home. This part of the research is not reported here since the two groups are not compared).

Subject sample

Nine children who were age 18 months and 13 who were age 24 months at the beginning of the study. All were white and from middle- or upper-middle class homes. No information is provided on the children's age of entry or length of child care experience. All the children attended their centre for at least 20 hours a week for the duration of the study.

Program sample

Five centres, three of which were university-affiliated. The caregiver-to-child ratio in the centres was 1: 4 or 5. All the head teachers had at least 4 years of college (6 had M.Ed. or teacher training) and all the centres were characterized as "richly equipped with educational materials" and had programs which included educational activities.

Measures

- observation of the child approximately 40 minutes once a month to obtain information about the child's daily experience. Children starting at age 18 months were observed 12 - 16 times while children starting at 24 months were observed 7 - 10 times. Variations in the number of observations within each age group reflect missed sessions due to child illness or vacation. All observations were done by the same three people using the Carew-Home Scale (Carew-Watts et al., 1973). This scale categorizes activities as: intellectual; play-exploration; routine talk; gross motor; basic care; preparation for an activity; and restriction. No information given on inter-observer agreement;

- Bayley Mental Scale (Bayley, 1970) at 24 months and Stanford-Binet (Terman & Merrill, 1973) at 36 months; and

- a test of receptive language and spatial abilities specially designed for this study was administered at 24, 30, and 36 months of age;

Findings

- the extent of language mastery experiences provided by the caregiver between ages l8-33 months predicted 42% of the variance on the Binet, 22% of the variance on the test of receptive language, and 35% of the variance on the test of spatial abilities;

- the amount of structured expressive-artistic opportunities provided for the child predicted 22% of the variance in expressive language and 36% of the variance in spatial abilities;

- the amount of reciprocal verbal interaction between the caregiver and the child predicted scores at age 3 on the Binet ($p < .0l$), receptive language ($p < .05$), and spatial abilities tests ($p < .0l$); and

- there was a significant negative correlation between the amount of child restriction by the caregiver and scores on receptive language at age 3 ($p < .05$).

Weaknesses

- no information is given on either the coding method or the extent of inter-observer agreement; and

- the possible impact of family background or the child's initial cognitive development is not addressed.

Clarke-Stewart, K.A., & Gruber, C.P. (1984) **Day care forms and features.** *In R. Ainslie (Ed.) The child and the day care setting, New York: Praeger, 35-62.* *

Country of origin - United States (Chicago)

Issue

The impact of child care type (in-home sitter, family-based child care, nursery school, and child care centre) and features (number of children, caregiver characteristics, physical environment, programming) on the child's social competence, expressive and receptive language, and knowledge of concepts.

Subject sample

81 two- and three- year olds, 47 in nursery school or child care centre, 34 with a sitter in their own home or in family-based child care. Mean age of the former group was 39 months and of latter group was 32 months. The study findings are reported on the basis of home setting (own home with sitter or family-based child care) and centre setting (nursery school or child care centre).

Program sample

63 different settings, as follows:

- o own home with babysitter (N = 14 children)
- o family-based child care (N = 20 children)
- o nursery school (N = 22 children)
- o centre-based child care (N = 25 children)

Major differences across program types included the age of caregiver, the training and education of the caregiver, the degree to which the environment was adult rather than child oriented, the caregiver-to-child ratio, the group size, and the number of hours the program operated (main difference was between half-day nursery school and full-day centre or home arrangement).

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* The same study is also reported in Clarke-Stewart, K.A. (1987) Predicting child development from childcare forms and features: the Chicago study. In D. Phillips (Ed.) Quality in Child Care: What Does the Research Tell Us? Washington, D.C.: National Association for the Education of Young Children. 21-41.

Measures

- observation of the child at home alone with mother, at home with mother and an adult stranger, alone with mother and a previously unknown peer, and at home with the whole family;
- observation of the child in a laboratory setting alone with mother, with mother and an adult stranger, and then with mother and a previously unknown peer;
- observation of the child care setting (for children at home with a sitter, this was their own home), e.g. number of toys available, presence of potentially dangerous items, etc.
- interviews with the child's parents and caregiver.

The observations totalled 4 - 8 hours per child. Assessments of the child included physical independence from mother, social reciprocity with mother, how well the child could take the perspective of another, sociability with an adult stranger, sociability with an unknown peer, and scores on standared tests of receptive and expressive language, knowledge of concepts, and memory span.

Findings

- in the home settings (at home with babysitter or in family-based child care) having either no other children to play with or more than 5 was associated with low social competence with an unknown peer;
- in the home settings, neither the number of children in the group nor the caregiver-to-child ratio was associated with any measure of child functioning or development;
- larger (versus smaller) centres were associated with children who did more poorly on a test to measure their understanding a social situation ($r = -.37$), sociability with mother $r = -.32$), and social competence at home ($r = -.42$);
- larger (versus smaller) class size was associated with lower levels of social competence with adults ($r = -.33$) and with peers ($r = -.36$) but better ability to take the perspective of another ($r = .36$);
- more children per caregiver in centres was associated with higher levels of cooperation with adults ($r = .32$) and with other children ($r = .29$);
- in the home settings, higher caregiver education was associated with the child's greater social competence with an adult stranger. However, the correlation was reduced to non-significance when the child's socioeconomic background was statistically controlled;

- in centre settings, children whose caregivers had worked in the setting longer, had more training in child development, and were more knowledgeable about child development did better on cognitive tests but were less independent and less socially competent with peers, parents, or other adults than children whose caregivers had less experience and less training in child development;

- children did better in homes which were relatively neat and orderly and where there were few adult-oriented decorative items;

- in centre programs, children who did well on tests of intellectual abilities were in environments which were safe, orderly, and rich in toys and educational materials. Children with higher peer social skills tended to be in environments which were safe but had relatively few toys. The above suggests that a safe environment is basic for a good program and that when cognitively stimulating toys are not available children interact more with peers, thereby improving their peer skills; and

- cognitive scores in centres were positively related to the degree of structure in the program, but there was no correlation with a particular type of curriculum, e.g. Montessori or Piagetian.

Strengths

- statistical controls were used to address the impact of the child's family socioeconomic status.

Weaknesses

- no information is provided about the measures used to assess verbal skill or knowledge of concepts or to observe behaviour;

- some findings are reported in the text as "associations" but no statistics are provided on the strength of correlation or degree of significance, if any; and

- the findings for family-based child care are reported as a composite with the findings related to the child who has a babysitter in his/her own home. However, the two situations may have been quite different in factors such as the number of children in the home at a given time.

Cummings, E.M. (1980) **Caregiver stability and day care.** *Developmental Psychology, 16(1), 31-37.*

Country of origin - United States

Issue

The impact of caregiver stability on the child.

Subject sample

Caregivers classified as stable had worked more time in the centre when the child was present (mean = 700.3 hours) than had caregivers classified as non-stable (mean = 299.8 hours). In all but three cases, "stable" caregivers had at least 100 hours advantage over "non-stable" caregivers. All the caregivers had been working in the centre attended by the child with whom they were tested for at least one month prior to testing. The children were 18 boys and 12 girls between the ages of 12 - 28 months (mean = 21.3 months) and all had been active members of their centre for at least 2 months prior to testing. The average rate of attendance was 30.6 hours per week. The control group consisted of 5 boys and 9 girls, range 13-27 months (mean 20.6 months). These children were all on the waiting list of one of the centres used in the study so were considered to have a similar socio-economic background to the study sample.

Program sample

Two university-affiliated centres operated for the students and faculty. Each centre had 15 - 20 children ranging in age from 4 -28 months and a caregiver-to-child ratio of 1:4. The caregivers shared responsibility for all the children rather than being assigned to specific infants.

Measures

- a variation of the Strange Situation (Cohen & Campos, 1974) with the following four episodes: infant with mother and stranger; infant with stable caregiver and stranger; infant with non-stable caregiver and stranger; and infant with stable and non-stable caregiver. The non-child care infants took part in an equal number of mother and stranger episodes; and

- infants in child care were observed as they were dropped off at the centre by their mothers on two separate days. On one day the mother specifically left the child with the "stable" caregiver, on the other day she left the child with the "non-stable" caregiver.

Procedure

Both measures were videotaped and then coded.

Findings

- in the laboratory situation the infants showed a consistent trend towards greater proximity-seeking and more eye contact with stable versus unstable caregivers and less distress (but none of these was at a statistically significantly different level);
- the infants showed a strong general preference for either caregiver over the stranger ($p < .02$);
- there was no significant difference between the children in child care and those who were not in behaviour towards their mother in the laboratory situation;
- in the dropping off situation, 14 of the 30 infants responded in a similar fashion to the stable and to the unstable caregiver. Thirteen of the 16 children who responded in a differentiated fashion at transfer responded more negatively to the unstable caregiver ($p < .05$), e.g. by crying, pulling away from the caregiver; and
- in the two-minute period after transfer, infant positive affect, e.g. smiling, was more common when the caregiver to whom he/she had been transferred was "stable".

Strengths

- used videotaping and then coding, thereby giving the opportunity to re-run the tape if any question about what had occurred; and
- used analysis of variance to examine the possible effect of age, gender, or centre. There was none found.

Weaknesses

- several of the infants in child care did not complete all four trials. Thus, the data for the laboratory situation is incomplete; and
- there was only one trial of mother transfer to each of the stable and the unstable caregiver. Thus the findings could be influenced by the child's mood that particular day.

Field, T. (1980) **Preschool play: Effects of teacher/child ratio and organization of classroom space.** *Child Study Journal, 10(3), 191-205.*

Country of origin - United States (Miami, Florida)

Issue

The impact of ratio and size of physical space on preschoolers' play behaviours and peer interactions.

Subject sample

80 white middle-class three- and four-year olds who were randomly assigned to four different experimental situations.

Program sample

4 classrooms in the same university laboratory school with 4 different experimental situations, as follows:

- classroom A - ratio of 1:12 and the room partitioned into small special play areas;
- classroom B - ratio of 1:12 and the room a single large open space;
- classroom C - ratio of 1:4 and the room partitioned into small special play areas; and
- classroom D - ratio of 1:4 and the room a single large open space.

All four classrooms had similar curricula and were the same size. At least one teacher in each room was a certified preschool teacher and the aides were graduate students in preschool education.

Measures

- Parten's (1932) classification of play: onlooker-unoccupied; solitary; parallel; associative; and cooperative; and
- interaction partners and type of interaction (e.g. positive or negative, target child as initiator or responder) using the instrument designed by Marshall & Hahn (1967).

Procedure

Each child was observed for 20 minutes a session, twice a month over a 9 month period for a total of 18 observations (6 hours). Observers were graduate students blind to the purpose of the study who used audio recording. Inter-observer agreement was .78 to .93.

Data analysis

The number of one minute time sample units (TSUs) during which each behaviour was observed was converted to a percentage of the total number of TSUs per observation. An analysis of variance was used to explore the impact of ratio and physical space.

Findings

- the groups of children in classrooms B and C did not show significant differences from each other;
- children in classroom A showed greater percentages of the following defined-by-the-author positive behaviors than did children in classrooms B or C: interaction with peers ($p < .01$); verbal interaction ($p < .005$); fantasy play ($p < .01$); and associative-cooperative play ($p < .01$). Children in classrooms B and C showed a higher percentage of these behaviours than did children in classroom D; and
- classroom D showed a higher percentage of the following behaviours than did B or C, and they, in turn showed a higher percentage than occurred in classroom A: children exhibiting onlooker-unoccupied behaviour ($p < .001$); teacher disruption of interaction ($p < .001$); and teacher interaction ($p < .01$).

Conclusions

- a high number of teachers in the classroom was associated with greater teacher intrusion; and
- children in partitioned spaces interacted more freely and teachers disrupted peer interaction less often.

Weakness

- the examination of two indicators simultaneously makes it difficult to sort out the effect of each
on an individual basis.

Fiene, R., & Melnick, S.A. (1990) **Licensure and program quality in early childhood and child care programs**. *Paper presented at the American Educational Research Association Annual Convention, Boston, Massachusetts, April 16-20.*

Country of origin - United States (Pennsylvania)

Issues

- o are there differences in quality between:
  - non-profit and for-profit centres
  - agency-sponsored and independent family child care
  - child care centres and family-based child care
  - urban, suburban, and rural programs; and
- o what is the relationship between scores on the Early Childhood Environment Rating Scale (ECERS) and the Child Development Program Evaluation Scale (CDPE).

Program sample

149 randomly selected child care centres and family-based child care providers from 11 different counties in Pennsylvania, the sample included:

- o 87 centres, of which 56 (64%) were for-profit
- o 62 family-based child care providers, of which 26 (42%) were agency sponsored.

All the child care programs were licensed and all the family child care providers were registered.

Measures

- o the Early Childhood Environment Rating Scale (Harms & Clifford, 1980);
- o the Family Day Care Rating Scale (Harms & Clifford, 1984); and
- o the Child Development Program Evaluation Rating Scale (Fiene & Nixon, 1981). This includes the following scales: administration; environmental safety; child development program; nutrition; social services; health; and transportation.

Procedure

The data for the ECERS and FDCRS were collected by university students who were given a two-week training program. In all cases the inter-rater reliability was established at .90 or above. The CDPE data were collected by State child care licensing staff. This instrument is used by Pennsylvania as part of its licensing procedure.

Findings

- on six of the seven ECERS scales the mean scores for the non-profit centres were higher than those of the for-profit centres at a statistically significant level. The mean for the non-profit centres on the seventh scale ("basic care") was marginally higher than the mean obtained by the for-profit centres;

- there was no significant difference in mean scores between the agency-sponsored and the independent family-based child care providers on the FDCRS except for the "space" subscale. However, the independent providers obtained slightly higher scores on all the scales;

- when the average scores on the ECERS and FDCRS were used to compare centres and family-based providers, the centres scored higher than the providers on 5 of 6 scales;

- when the average scores of the ECERS and FDCRS were used to compare programs on the basis of rural, suburban, or urban setting, the scales were in favour of the rural programs except for the Adult Needs scale; and

- a comparison of the ECERS and the CDPE showed a curvilinear relationship between program quality and compliance with state requirements.

Weaknesses

- levels of significance are not reported; and

- 72% of the family child care providers who were originally approached to participate were no longer providing child care. There is no information on the length of time the family-based child care providers who did participate had been providing child care.

Francis, P. L., & Self, P.A. (1982) **Imitative responsiveness of young children in day care and home settings: the importance of child-to-caregiver ratio.** *Child Study Journal, 12(2), 119-126.*

Country of origin - United States

Issue

The effect of caregiver-to-child ratio on children's spontaneous imitative responses.

Subject sample

Two groups of 24 children each. One group, average age 26 months, had been attending a child care centre 4 or 5 days a week for at least 8 hours a day and had been in their present program for at least one month. The other group, average age 24 months, had been cared for solely at home. According to the authors, the two groups were similar with respect to race and socioeconomic status.

Program sample

Four centres which, according to the authors, were "similar with regard to socioeconomic factors and child-to-caregiver ratio". The ratios in the centres averaged 1:10 and in the homes averaged 1:2.

Measures

The investigator presented four linguistic stimuli and four gestural stimuli. The child was given 10 seconds to imitate the investigator with no prompt to imitate being given. The inter-observer reliability between the investigator and a second observer exceeded .90 for all subjects with an average of .98.

Findings

Home-reared children exhibited more linguistic imitation ($p < .02$) and more gestural imitation ($p < .01$) than did children in centres.

Weakness

- it appears that both the investigator and the second observer knew the purpose of the study and whether the child was home-reared or attending a centre. This could have introduced a bias into their observations.

Goelman, H., & Pence, A. (1988) **Children in three types of day care: daily experiences, quality of care and developmental outcomes.** *Early Child Development and Care, 33, 67-76.* *

Country of origin - Canada (Victoria, B.C.)

Issue

The relationship between quality in child care, the child's experience, and the child's language development.

Subject sample

105 children and their parents and caregivers, 53 children were in centres, 27 in licensed family child care, and 25 in unlicensed family child care. All the children had been enrolled in their current setting for at least 6 months and attended at least 30 hours a week. The authors state that an analysis of variance revealed no across group differences in age of enrolment in child care, parent characteristics such as education, or family structure (one- or two-parent).

Program sample

A total of 74 settings, 25 licensed centres, 24 licensed family-based child care settings, and 25 unlicensed family-based child care settings. The licensed settings were obtained through the local licensing authority and the unlicensed through advertising.

Measures

- the Early Childhood Environment Rating Scale (Harms & Clifford, 1980);
- the Day Care Home Environment Rating Scale (Harms et al., 1983);
- the Child Observation Form (Goelman, 1983). This is an event and time sampling instrument to record play activities and play partners. Observations were done for a total of 6 hours over two mornings. No information is provided on inter-rater agreement.
- the Peabody Picture Vocabulary Test (Dunn, 1979);
- the Expressive One-Word Picture Vocabulary Test (Gardner, 1979);
- a one-hour structured interview with the parents and with the caregiver, part of which focused on their perception of the characteristics and quality of the child care setting.

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* The same study is also reported in D. Phillips (Ed.) Quality in Child Care: What Does the Research Tell Us? Washington, D.C.: National Association for the Education of Young Children, 89-104.

Findings

- o children in centres received significantly more information type verbal interactions with the caregiver (9.4%) than did children in unlicensed family child care (5.1%) or licensed family child care (3.4%). Significant at the .01 level;

- o the mean ECERS score for centres was 171, and the mean DCHERS scores were 114 for licensed family child care and 96 for unlicensed family child care. On each subscale, the ratings for centres and for licensed family child care were higher than for unlicensed settings;

- o for the two family-based settings, the frequency of activities likely to facilitate the child's language development correlated significantly ($p < .05$) with the DCHERS total score and with subscales on language development ($r = .46$), learning activities ($r = .36$), and social development ($r = .41$). There was as similar pattern in the centres;

- o children's scores on the Peabody correlated significantly ($p < .05$) with both the total DCHERS score ($r = .51$) and the subscale on social development ($r = .33$);

- o children's scores on the Expressive One-Word Picture Vocabulary Test correlated significantly ($p < .05$) with the total DCHERS score ($r = .32$), the subscale on learning activities ($r = .33$) and the subscale on social development ($r = .48$);

- o there was no significant correlation between the ECERS total score and children's performance on either measure of language development;

- o the mean scores of children in unlicensed family child care settings were significantly lower on both language tests than the mean scores of the children in licensed family child care or centres ($p < .04$);

- o when the family-based settings with the highest scores on the DCHERS (one standard deviation above the mean, N = 15) were compared with the settings which had the lowest scores (one standard deviation below the mean, N = 11), the researchers found that:

  - 13 of the 15 high quality were licensed and 9 of the 11 low quality were not

  - children in high quality homes engaged with greater frequency in each of gross motor, fine motor, information, and reading activities and watched less T.V. than children in low quality homes

- the mean Peabody score (98.42) and Expressive One-Word Vocabulary Test Score (109.03) for children in high quality homes was higher than for those in low quality homes (83.3 and 86.63 respectively)

o children from "low resource" families (i.e. single parent, or low education and occupational status) were more likely to be enrolled in family child care with low DCHERS scores than children from other families.

Weaknesses

o no information on inter-observer reliability; and

o no information on whether or not an attempt was made to control for parent intellectual and language skills when examining the children's scores on the Peabody.

Golden, M., Rosenbluth, L., Grossi, M., Policare, H., Freeman, H., & Brownless, E. (1979) **The New York City Infant Day Care Study**. *New York: Medical and Health Research Association of New York City Inc.*

Country of origin - United States (New York City)

Issue

What are the effects of licensed group and family child care programs on children and their families.

Subject sample

All the children were from low income families and considered to be "at risk" for future problems. The children in child care were all enrolled on a full time basis.

- 107 who entered group child care between 2 and 21 months. Sixty-six percent were black and 28% were Hispanic. This group was studied longitudinally until age 33-36 months;
- 140 children who entered family child care between 2 and 21 months. Thirty-nine percent were black and 47% were Hispanic. This group was also studied longitudinally until age 33-36 months; and
- 77 children cared for in their own home until 30 -36 months of age and then enrolled in child care. Fifty-four percent were black and 32% Hispanic. This group was compared with the other two groups on a cross-sectional basis.

There was a significant difference between the three groups on ethnicity ($p < .01$), Bayley scores at 6 months ($p < .01$), and proportion of families receiving public assistance ($p < .01$).

Program sample

- 11 licensed, non-profit group programs, centre size ranged from 10-55 with mean size of 30. Group size ranged between 8 and 10, caregiver-to-child ratio was 1:4 for children age 0-6 months, and 1.5 for children age 6-36 months. The head teacher in classes for two- and three-year olds was required to have a B.A. and state E.C.E. certificate; and
- 20 licensed non-profit agencies operating several satellite family-based child care homes. The maximum number of children per home was 6, but the average was 3. There were no training requirements for providers, but each home was visited weekly by an agency "educational aide".

Measures

a) children

- o Bayley Scales of Infant Development (Bayley, 1969) at 6, 12, and 18 months;
- o Stanford-Binet Intelligence Scale (Terman & Merrill, 1973) and Peabody Picture Vocabulary Test (Dunn, 1979) at 36 months;
- o play interview to assess cognitive, language, and social-emotional functioning at 36 months;
- o naturalistic observations on each child to rate language competence, social competence with adults and with peers, and adequacy of emotional functioning at 36 months;
- o visual, hearing, and dental screening at 36 months.

Hispanic children were evaluated by examiners who were fluent in both English and Spanish.

b) families

- o data on socio-economic and demographic status was collected and the parents interviewed when the child entered child care and at about age 3. Socioeconomic status was determined by the Two Factor Index of Social Position (Hollingshead, 1957);
- o the St. Paul Profile of Family Functioning (Geismar & Ayers, 1960). This examines family relationships and child rearing practices.

c) child care settings

- o all-day naturalistic on-site observation of target children and caregiver-child interaction at 12, 18, and 24 months of age. Information was also collected on the physical setting, e.g. materials and equipment, available space, and on the program provided to the children.

Procedure

The initial psychological examinations conducted at 6, 12, and 18 months provided baseline measures for the children in child care. When the 36 month data was analyzed, there was a statistical control for differences observed at age 18 months. The observers who did the on-site observations were specially trained on how to use the instrument and did several practice tests. No information is provided on inter-observer agreement.

Findings

- o caregiver provision of social interaction correlated significantly with child social competence with adults at age 3 ($p < .01$);

- caregiver social-emotional stimulation at 24 months correlated significantly with child scores at 36 months on social competence with adults ($p < .01$) and language competence ($p < .01$);

- at 18 months, children who had entered child care between 2 and 14 months outperformed their home-reared counterparts on the Bayley (means = 100.4, 98.0, and 92.9 for centre, family child care, and home respectively). The age at which the child was enrolled in child care was not related to Bayley scores at 18 months).

- at 36 months, children who had been in centre care outperformed the other two groups on the Binet (means = 99.1, 92.0, and 92.6 for centre, family child care, and home respectively). The mean score of children from centres was significantly different from that of the other two groups ($p < .01$). They also outperformed the other two groups on the Peabody (means = 81.1, 75.7, and 76.5 for centre, family day care, and home). The difference was not statistically significant;

- age of entry into child care was not correlated with either the Peabody or the Binet'

- there was no significant difference observed among the three groups of children on assessed competency in everyday situations, how they related to people, or how they coped with feelings;

- there was no long-term impact on family functioning from either type of child care as measured by the St. Paul profile.

Weaknesses

- most of the centre characteristics and the data on caregiver-child interaction was obtained through a non-standardized observation instrument;

- no information is provided on between-observer agreement using the naturalistic observations; and

- there is no indication of whether there was any statistical control for the differences between the groups on initial Bayley scores.

Holloway, S.D., & Reichhart-Erikson, M. (1988) **The relationship of day care quality to children's free-play behavior and social problem-solving skills.** *Early Childhood Research Quarterly, 3, 39-53.*

Country of origin - United States (Maryland)

Issue

The relationship between caregiver-child interaction and the size of the classroom and the child's social problem solving skills, peer interaction, and type of play.

Subject sample

Fifty-five middle-class children, average age 53 months, range 48-59 months, all but 3 were white. Twenty-nine of the children attended on a full-time basis, the remainder attended either 5 half days or 2 or 3 days a week.

Program sample

Fifteen preschools and child care centres, all privately owned and operated.

Measures

- each classroom was rated using the teacher-child interaction, child-child interaction, and physical environment subscales of the Early Childhood Observation Instrument (Bredekamp, 1985). The ratings were based on three separate visits, each for a minimum of half-an-hour;
- behavioural observations were obtained for each child during two 20-minute sessions during free-time play on two separate days. The behaviour was coded into one of the following: interaction with teacher; positive interaction with peer; negative interaction with peer; solitary play; observing other; day dreaming; and moving from one activity or location to another. The inter-observer agreement was 94% or better for each category;
- social problem solving was assessed by using a procedure adapted from Spivak & Shure (1974). The responses were coded as prosocial or antisocial using Rubins (1981) categories. Inter-rater agreement was 80%; and
- parent social class was calculated on the basis of each parent's education and occupation.

Findings

- o there was no correlation between social class or hours spent in substitute care and child behaviours or scores on the measure of social problem solving;
- o children who engaged in positive behaviour with peers were less likely to engage in solitary play ($p < .001$), spent less time observing other children ($p < .01$), and spent less time in day dreaming ($p < .01$);
- o children in more spacious settings engaged in more focused play ($p < .05$) and less observing ($p < .05$);
- o children in centres where space was organized to accommodate groups of varying sizes gave more prosocial responses in the test of social problem solving skills ($p < .05$);
- o children in larger classes gave more antisocial responses to the test of social problem solving skills ($p < .001$);
- o children in classes with larger child-to-caregiver ratio spent less time in solitary play ($p < .05$);
- o children from a higher socioeconomic background were more likely to be in centres where there was positive teacher:child interaction ($p < .001$), space organized to define activity areas ($p < .01$) and with a higher variety of appropriate materials ($p < .001$) than were children from a lower socioeconomic background; and
- o there was a trend which almost approached significance for children experiencing higher quality teacher interactions to give a greater number of prosocial responses to the test of social problem solving.

Strengths

- o controlled for the impact of social class, parent education, and child's length of time in substitute care

Weaknesses

- o no information is provided on the centres' characteristics such as caregiver-to-child ratio or class size; and
- o the children's social problem solving is assessed by the child's words, not behaviour.

Howes, C. (1983) **Caregiver behavior in center and family child care.** *Journal of Applied Developmental Psychology, 4, 99-107.*

Country of origin - United States

Issue

What are the relationships between variations in child care settings and adult caregiving behaviours.

Subject sample

40 children, average age 19.5 months, range 18-22 months, who had been attending child care for at least 4 months (average was 8 months) prior to the study. Twenty children were in centre-based and 20 in family-based child care. The children in the two groups were comparable in age, gender, ethnic background, length of time in child care, family structure (one- or two-parent), and family socioeconomic background.

Program sample

16 family child care providers and 8 centres, all obtained from the state licensing list. Ninety-seven percent of the programs approached agreed to participate. The caregivers had worked in child care for a median of 3 years (range 1-15 years), almost half had a B.A. in a child care related field and 25% had special training. The mean caregiver-to-child ratio was 3.5 in family child care and 3.4 in the centres. There were significant differences ($p < .01$ or better) in the number of children in the group, the number of adults present, and caregiver training between the family- and centre-based settings.

Measures

- the caregiver with primary responsibility for the sample toddler was interviewed; and
- a two-hour, time sampled, observation was made of the toddler's free play time. The adult's caregiving behaviours were coded as: facilitative social stimulation; express positive affect; express negative affect; restrict, forbid, or intrude on the child's activity; positive response to the child's approach; ignores toddler's request for attention; negative response to toddler's distress. The child's behaviour was coded as: talks, touches, or shares object with the caregiver; expresses positive affect to the caregiver; expresses negative affect to the caregiver; asks caregiver for something; and violates adult standards. One observer collected all the data.

Findings

- caregivers in either centre- or family-based settings with fewer children in their care, who worked shorter hours, and had less responsibility for housework engaged in more facilitative social stimulation, expressed more positive affect, were more responsive, and were less restrictive and negative than other caregivers ($p < .05$);

- caregivers in family-based child care with more experience were more likely to be positively responsive to the child's social bids and less likely to express negative affect or to restrict toddler activities. Centre caregivers with more experience were more likely to play with the child and less likely to ignore the child's requests (both $p < .05$);

- both family child care providers and centre staff with more training were more likely to play, to mediate objects, and to respond positively to the child's social bids ($p < .05$). Centre caregivers with more training were also more likely to express positive affect ($p < .05$) and less likely to restrict the toddler ($p < .001$) or ignore the child's requests ($p < .05$);

- family child care providers who worked in space designed to be safe and appropriate for the children were less likely to restrict their activity ($p < .05$) and less likely to express negative affect ($p < .05$);

- facilitative social stimulation (the combination of caregiver talk, play, mediate objects, touch and hug) was best predicted in centres by a favourable caregiver-to-child ratio and caregiver training ($p < .01$). In family-based settings, it was best predicted by small group size plus training plus child designed space ($p < .01$);

- positive emotional climate was best predicted in family child care by the combination of child designed space, small groups, and training ($p < .01$) while in centres it was best predicted by caregiver-to-child ratio and caregiver training ($p < .01$);

- caregiver restrictiveness was best predicted in family child care by space that was not child designed ($p < .01$) and in centres by less caregiver training and longer hours of child contact ($p < .01$); and

- caregiver responsiveness was best predicted in family child care by small groups and child designed space plus fewer hours of contact ($p < .01$) and in centres by small groups and caregiver training ($p < .01$).

Howes, C. (1988) **Relations between early child care and schooling** *Developmental Psychology, 24(1), 53-57.*

Country of origin - United States (California)

Issue

The relationship between aspects of child care (age of enrollment, full- or part-time, number of child care arrangements, and quality) and the child's school adjustment.

Subject sample

87 children who entered a laboratory elementary school when they were between 45-57 months old. The median education of the mothers was 14 years (range from elementary school only through doctoral studies) and 70% of the children came from two-parent intact families. Seventy-five children had attended child care prior to enrolment in the school program and these settings were the program sample described below. The school program consisted of a half-day mixed pre-kindergarten and kindergarten experience for two years and then first grade. Testing was conducted at the end of grade one.

Program sample

81 different centres and family child care homes. Of these, 49% were considered to be high quality, 30% were considered to be medium quality, and 21% were ranked as low quality. The indicators of quality used in the study were: caregiver training in child development; group size less than 24; caregiver-to-child ratio of 1:8 or less; a planned and individualized educational program; and adequate physical space. Settings ranked as high quality had all five dimensions, those classified as medium quality had three or four of the indicators. Inter-rater agreement for quality ratings was 97%.

Measures

- a questionnaire completed just prior to the child's enrolment in the laboratory elementary school to determine: the child's age of entry into child care; whether child care had been full- or part-time; the number of different child care settings experienced by the child; maternal education; maternal employment; and whether or not there were two parents at home. The information was verified by the researcher. The age of entry into school was used as the age of entry variable for children who had not attended child care;

- the child care settings were rated by two child care consultants who were employed by child care information and resource centres. The ratings were made on the basis of on-site visits done within the previous year;

- current information on maternal education and employment status was provided by the mother at the end of grade one;

- o at the end of grade one, the child was rated by the classroom teacher on:

  - extent of academic progress relative to ability

  - school skills, e.g. ability to follow directions, ability to remain focused on a task

  - group skills, e.g. interacts appropriately with peers

  - participatory skills, e.g. contributes thoughtful oral answers in discussions

  The child's scores on the above were totalled to give a composite school-skill score;

- o at the end of grade one, each parent completed the Achenbach & Edelbrock Child Behaviour Profile (1981).

Data analysis

Multiple regression techniques were used to address the predictive significance of children's child care history for school adjustment when family background variables were controlled, and to address the relative predictive value to child care characteristics.

Findings

- o early entry into child care was associated with academic progress in boys ($p < .05$) and with school skills for girls ($p < .01$);

- o for boys, maternal education was positively associated with academic progress ($p < .01$) and school skills ($p < .001$);

- o there was no significant difference in academic progress, school skills, or behaviour problems related to full- or half-day enrolment; maternal employment status; or family structure;

- o once family characteristics were accounted for, academic skills were predicted by a stable child care arrangement for girls and by both a stable child care arrangement and quality for boys; and

- o after family characteristics were accounted for, child care quality predicted school skills and reported behaviour problems for both boys and girls.

Strength

- o used a multiple regression analysis technique to control for socioeconomic background variables.

Weakness

- the use of multiple indicators to define quality makes it impossible to determine which one was responsible for the findings.

Howes, C. (1990) **Can the age of entry into child care and the quality of child care predict adjustment in kindergarten?** *Developmental Psychology, 26(2), 1-12.*

Country of origin - United States

Issue

What is the impact of a) age of entry into child care, and b) quality of care, and c) family characteristics on the child's social adjustment in kindergarten.

Subject sample

45 children enrolled in child care before their first birthdays and 35 enrolled between the ages of 12 - 48 months. 25 of the younger group and 35 of the older group were enrolled in "high quality" care while the remainder in both groups had been enrolled in "poor quality" care. There were no significant differences between the two age groups on demographic variables. At the time of initial contact (see the study by Howes & Olenick, 1986), all children were in full-time child care and had been attending on a full-time basis since enrolment.

Program sample

- 4 "high quality" programs, these had the following characteristics: caregiver-to-child ratio of 1:4 for age 2 or younger and 1:7 for children over age 2; caregiver training which ranged from 12 units of child development courses to a masters degree; and children who had experienced no more than two different caregivers in the past year; and
- 4 "low quality" programs, these had the following characteristics: caregiver-to-child ratio of 1:8 or 9 for age 2 or younger and 1:12 or 13 for older children; no caregivers with formal training in child development; and children who had experienced 5 or 6 different caregivers within the past year.

Procedure

Child measurements were taken at 18, 24, and 30 or 36 months of age (toddler), then just before entry into kindergarten (preschool measurements), and at the conclusion of kindergarten (kindergarten measurements). Therefore, social adjustment was assessed over three time periods.

Measures

- observation of the child at home (toddler measurement);
- observation of the child in the child care setting (toddler measurement);

- observation of the child and parent in a standard laboratory situation involving two tasks of compliance and two tasks of child self-regulation (toddler measurement);

- interview with parents regarding family life (toddler measurement);

- observation of the child during free play period in the child care setting 4 times on 4 different days. Coding was done on social play with another; fantasy play; positive affect versus negative affect (preschool measurement);

- teacher rating of the child's functioning with peers, this included child reaction to peer interference, bossiness, hitting, ability to share, withdrawal, initiates activities, shows concern if another distressed (preschool measurement);

- parent rating on the Achenbach Child Behavior Checklist (Achenbach & Edlebrock, 1981). This was a kindergarten measurement; and

- teacher ratings on the distractibility, hostility, verbal intelligence, task orientation, and consideration of others subscales of the Classroom Behavior Inventory (Schaeffer, 1981).

Findings

- different measures of social adjustment were selected for each age period to be consistent with relevant social tasks for each. Compliance behaviour in child care as a toddler was correlated with preschool and kindergarten teacher ratings of the extent to which the child was "difficult", distractible, able to remain focused on a task, and considerate ($p < .05$). Preschool and kindergarten ratings of maladjustment were consistent. Toddler self-regulation was significantly correlated with teacher rating of verbal intelligence in kindergarten ($p < .05$). These findings suggest stability over time;

- children enrolled in "high quality" child care:

  - as toddlers were more compliant in the child care setting and displayed more self-regulation in the laboratory test ($p < .05$)

  - as preschoolers display more positive affect relative to anger and distress when observed in the centre ($p < .05$) and engaged in more social pretend behaviour ($p < .05$);

  These findings pertained to all children enrolled in high quality care regardless of the age of enrolment.

- children enrolled in "low quality" care:

  - as preschoolers were rated as having more difficulty with peers ($p < .05$)

  - in kindergarten were rated by teachers as more hostile ($p < .05$)

  These findings pertained to all children enrolled in low quality care regardless of the age of enrolment.

- children who enrolled in "low quality" care as <u>infants</u>:

  - as toddlers were the least compliant ($p < .05$) and the least likely to self-regulate in the laboratory test ($p < .05$)

  - as preschoolers were rated by teachers as having the most difficulty with peers ($p < .05$)

  - in kindergarten were rated by teachers as the most distractible and least task-oriented of all the children ($p < .05$);

- children who enrolled in "high quality" care as infants did not have the problems found in children who had enrolled in "low quality" care before age one and did not appear different from children who had enrolled in child care at a later age;

- there were no mean effects for age of entry;

- children who experienced more caregiver involvement while in child care engaged in greater amounts of social play, showed more positive affect with peers, were rated as having less difficulty and being less hesitant with peers, were rated as being less distractible and less hostile, and as having higher verbal intelligence, task orientation, and consideration for others (all $p < .05$);

- parents who enrolled children in "low quality" care tended to be those who had more "complex" lives (i.e. difficult and/or disorganized) and used less appropriate socialization strategies than did parents whose children were enrolled in "high quality" care;

- family patterns of socialization best predicted outcomes for children enrolled after infancy; and

- family patterns of socialization were a less powerful influence for children enrolled as infants. Instead, child care quality, as represented by teacher socialization practices, was the more powerful predictor. For children enrolled as infants it predicted 27% of the variance in peer behaviour at school, 11% of the variance in behaviour problems, and 7% of the variance in difficulty in kindergarten.

Conclusions

- quality of care effects appear to be mediated by age of entry with poor quality having the greatest impact on children enrolled as infants; and
- the extent of positive caregiver-child interaction is a strong predictor of outcome and may be more important than ratio, training, or stability since it had an impact regardless of whether the centre was classified as "high" or "low" quality.

Weakness

- concurrent quality of care was not measured at kindergarten. Some of the child outcomes found at that time may have been a factor of the current quality of care.

Howes, C., & Olenick, M. (1986) **Family and child care influences on toddler's compliance.** *Child Development, 57, 202-216.**

Country of origin - United States

Issue

The impact of family characteristics and varying quality in child care settings on children's compliance and self-regulation.

Subject sample

89 children between the ages of 18-36 months (mean = 47 months), 78 of whom were from intact two-parent families. 32 of the children were not in child care, the remainder were in centre-based care, 32 of these children were in "high quality" situations and 25 in "low quality" situations. There was no significant difference between the 3 groups on age, gender, sibling status, family structure (one- or two-parent), father's occupation, parents' years of education, parents' ethnic background, or parent age.

Program sample

- 4 "high quality" programs, these had the following characteristics: caregiver-to-child ratio of 1:4 for age 2 or younger and 1:7 for children over age 2; caregiver training which ranged from 12 units of child development courses to a masters degree; and children who had experienced no more than two different caregivers within the past year; and
- 4 "low quality" programs, these had the following characteristics: caregiver-to-child ratio of 1:8 or 9 for age 2 or younger and 1:12 or 13 for older children; no caregivers with formal training in child development; and children who had experienced 5 or 6 different caregivers within the past year.

Measures

- parent interview to explore family life. These interviews were tape-recorded and scored by coders who were blind to the study hypothesis;

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* Howes (1990) did a follow-up of the children in this study. Her research is also reported in this annotated bibliography.

- home observation for one and a half hours between the time the family arrived home and the child went to bed. Observers event-recorded all control-compliance situations. Inter-observer agreement was 85 - 99%;

- child care observation for half an hour during the time when the children were expected to finish one activity, clean it up, then start another structured activity. Inter-observer agreement was 85% or better;

- child and primary parent participated in a four-task laboratory session involving two compliance with parent tasks and two self-regulation situations. The extent to which the parent insisted that the child complete the task and the extent to which the parent helped the child were also coded. Inter-observer agreement was 92% of better. Each of the four procedures was performed by a different researcher who was blind to the family's group membership.

Data analysis

Three types of data analysis were used in the study: multivariate analysis of covariance; correlational analysis; and multiple regression analysis.

Findings

- the lives of families using the "low quality" child care situations were rated as more complex (e.g. parent regularly away from home for 24 hours, shift or split work schedules, parent in evening school) than those of parents using "high quality" programs;

- children in high quality programs were more compliant and less resistive in the child care setting than were children in low quality programs ($P < .05$);

- children in high quality programs were more likely to self-regulate in the laboratory test than were those in low quality programs ($p < .001$);

- quality of care was the best single predictor for compliance versus resistance in the child's own home and both compliance and self-regulation in the laboratory situation;

- self-regulation in boys was best predicted by child care quality alone;

- task resistance in girls was best predicted by high parental involvement in the laboratory test; and

- task resistance in boys was best predicted by a combination of low quality child care, high life complexity, and high parental involvement in the laboratory test.

Howes, C., & Rubenstein, J. (1985) **Determinants of toddler's experience in day care: age of entry and quality of setting** *Child Care Quarterly, 14(2), 140-151.*

Country of origin - United States

Issue

The impact of caregiver-to-child ratio and group size on toddler's experience in their own home, family-based child care, and child care centres.

Subject sample

78 middle-class toddlers ranging in age between 17 - 22 months (mean = 19.2 months), 80% were white. Twenty three of the children were at home, 35 in full-time centre care, and 20 in full-time family child care homes.

Program sample

11 centres and 16 family child care homes. All the centres were non-profit and not affiliated with any university or research study. The caregiver-to-child ratio in the centres was 1:2 or 3 and the group size was 4 - 34. The family-based child care group sizes were 2 - 6.

Measures

- each toddler was observed for between 2 and 5 hours in his/her usual child care environment. Behaviours were time-sampled in 15 second intervals using a checklist of predetermined variables designed for this study. Behaviours were categorized as: talking (spontaneous or responsive); tactile contact; social mediation of an object (toddler shares, plays, social mediation, adult restriction); and affect (toddler laughs or smiles, adult laughs or smiles or praises, toddler cries, adult response to cry, adult reprimands or shows negative affect). Inter-observer agreement was .95.

Data analysis

- the observational data were combined to produce the following three clusters of social interaction:

  - talk and play - adult social mediation; child shares; child spontaneous talk; play; child responsive talk; adult responsive talk

  - restrict and cry - adult restricts child; adult reprimands child; child cry; adult spontaneous talk

  - touch and laugh - child initiates touch; adult initiates touch; child smiles or laughs; adult smiles, laughs, hugs, or holds.

- the impact of each ratio and group size was examined through one-way analysis of variance.

Findings

- the restrict and cry cluster was higher at home than in centres ($p < .01$) and higher in family child care than in centres ($p < .01$). The touch and laugh score was higher in centres than in family child care or at home ($p < .05$);

- children in settings with a ratio of 1:3 or less had higher talk and play scores that children in settings with ratios of 1:3.5 to 6 ($p < .02$) and higher touch and laugh scores ($p < .03$);

- children in settings with ratios of 1:3.5 to 6 had higher restrict and cry scores ($p < .001$); and

- children in larger groups (9 - 24) experienced more restrict and cry ($p < .05$) than did children in groups of 1 to 8. Children in the smaller groups had higher talk and play scores ($p < .001$)

Howes, C., & Stewart, P. (1987) **Child's play with adults, toys and peers: an examination of family and child care influences.** *Developmental Psychology, 23(3), 423-430.*

Country of origin - United States (California)

Issue

The relationship between play and quality of care and the influence of family factors, age of enrollment, and number of different child care arrangements.

Subject sample

55 children aged 11-30 months who were enrolled on a full-time basis in family child care homes. The mothers had similar educational and occupational characteristics and 82% of the children came from intact two-parent families.

Program sample

55 family day care homes, 73% were licensed. The mean number of children cared for in each home was 6.83, 49% involved a single caregiver, 37% involved 2 caregivers, and the remainder involved 3 caregivers.

Measures

- a trained graduate student administered the Family Care Rating Scale (Harms & Clifford, 1984) in each home and conducted two 15 minute observations of each child;
- the child's play with peers was rated on the Peer Play Scale (Howes, 1980);
- adult play with the child was rated using a scale developed for this study which is reported to have a test-retest reliability over a 7 day period of .85;
- the child's play with objects was rated using a scale developed by Rubenstein & Howes (1979) which has been found to have a positive relationship with the Bayley Mental Development Index at 12 and 18 months;
- family characteristics were assessed using the Feshbach (1985) scale to determine amount of stress in areas such as family finances, household chores, job;
- family social support was assessed by determining the number of family moves since the child's birth, the availability of support from friends and others, and frequency of contact with family's relations and friends;
- mother's satisfaction with her combined role of mother and worker was assessed by a self-administered scale; and

- o child rearing attitudes were determined through a modification of the Block Child Rearing Practices Report (Block, 1980).

Findings

- o more nurturing and supported families were associated with higher quality child care ($p < .05$), more restrictive and stressed families were associated with lower quality programs ($p < 01$);

- o more child care changes were associated with lower developmental levels of play with peers ($p < .01$); and

- o when family characteristics were controlled, higher quality care was associated with higher developmental levels of play with objects and with adults for all children and with higher developmental levels of play with peers for girls (level of relationship was not statistically significant).

Jorde-Bloom, B. (1989) **The Illinois Directors' Study**. *Report submitted to the Illinois Department of Children and Family Services. Evanston, Illinois: National College of Education. ED 305 167.*

Country of origin - United States

Issue

What centre director qualities are associated with quality child care provision.

Subject sample

990 directors of licensed child care centres. Their mean age was 40.7 years, range 21-77. Mean educational level was 4.2 years of college, range was 2 years of college to post M.A. coursework. Years of experience as a director ranged from 1 - 20 years with a mean of 5.87.

Program sample

Site visits were made to 103 programs, 21 were privately operated and for-profit, 6 were franchise for-profit, 55 were privately operated non-profit, and the remainder were publically operated non-profit. Size ranged from 20 - 600 with a mean of 101.3.

Procedure

All the directors completed a mail-out questionnaire. A stratified random sample of the agencies, selected to represent geographic location, size, and sponsorship, was also visited.

Measures

- a questionnaire to all centre directors which sought information about the program, the director's education and experience, and the director's views on the skills and training required to be an effective director;
- ranking of a list of 24 knowledge and skill areas gleaned from the literature regarding their perceived importance for a centre director by both the 990 directors and 89 experts (e.g. academics, members of the board of the National Association for the Education of Young Children, government officials);

- on-site administration of part of the Early Childhood Classroom Observation Scale (Bredekamp, 1986). This is used to evaluate centres applying to the National Academy of Early Childhood Education for accreditation. The scales used were: teacher-child interaction; curriculum; health, safety and nutrition; and physical environment. Inter-rater agreement was 90%, a test-retest done on 5 centres with a one month interval yielded a score of .97;

- the short form of the Early Childhood Work Environment Survey (Jorde-Bloom, 1989). This measures the staff members' perception of the quality of their worklife, e.g. opportunities for professional growth, supervisor support. This was administered to all the teaching staff in the 103 centres which received an on-site visit (N = 1,372); and

- administration of the Professional Orientation of the Centre scale (Jorde-Bloom, 1988). This measures the policies and regular activities of the centre that support professional growth, staff involvement in decision-making, and role clarity.

Findings

- 77.6% of the directors stated that coursework in administration and management of early childhood education programs should be a pre-requisite to being made a director;

- 87% of the experts felt that a bachelor's degree in early childhood education plus two or more years of frontline experience and coursework in staff supervision, financial management, communication, and organizational theory should be a pre-requisite to being made a director;

- both directors and experts stated that frontline experience in child care is essential before being made a director;

- there were positive correlations between overall centre quality as measured by the Early Childhood Classroom Observation Scale and the director's educational level ($p < .001$), the director having taken specialized coursework in early childhood education ($p < .01$), and the director having taken specialized coursework in early childhood education program administration ($p < .01$);

- there was a significant positive correlation between overall organization climate and director's level of education ($p < .01$);

- formal education was the strongest predictor of program quality ($p < .001$), specialized training in early childhood education and training in early childhood education program administration showed stronger associations with program quality (both $p < .01$) than did experience ($p < .05$);

- there was a significant positive correlation between the director's level of education and the centre's professional orientation ($p < .001$);

- specialized coursework in general business management was not associated with centre quality or organizational climate;

- neither experience nor training was associated with the centre's overall climate. The author speculates that overall climate is the result of director personality characteristics;

- there was a significant negative correlation between centre size and organizational climate ($p < .01$);

- when a one-way analysis of variance was used to examine the effects of the centre's legal structure on indicators of program quality non-profit centres consistently ranked higher than for-profit centres on program quality ($p < .001$), overall organizational climate ($p < .01$), and the centre's level of professional orientation ($p < .001$).

NOTE: The finding of the contribution of the director's formal education to the quality of the program is clouded by the fact that the post secondary school formal education of many of the subjects was in early childhood education. Therefore, the indicator with impact may be post secondary school education of this type, not simply post secondary school formal education per se.

Kagan, S.L., & Newton, J.W. (1989) **For-profit and non-profit child care: Similarities and differences.** *Young Children, November, 4 - 10.*

Country of origin - United States (Connecticut)

Issue

What, if any, are the differences in quality of care and services between for-profit and non-profit child care services.

Program sample

439 (64%) of 688 centres invited to participate in the study. Of these, 47 (10.7%) were government subsidized non-profit programs, 244 (55.6%) were privately supported, non-profit programs, and 148 (33.7%) were for-profit centres. From this group, "approximately equal numbers" of for-profit and non-profit centres were selected for observation (N=57). The actual number of centres under each auspices is not given. According to the authors, an analysis of the State's licensing records showed that the responding centres were essentially similar to those which did not respond. Also according to the authors, there were no appreciable differences in centre size, group size, and caregiver experience across the groups.

Measures

- a modified version of the Child Development Associate (CDA) checklist to determine caregiver competencies; and
- a child behaviour scale created for this study. No additional information is provided about this instrument.

Findings

- observers found no significant differences between the three types of centres on 6 of the 10 areas of the CDA checklist (safety, health, physical development, cognitive/language, individual strength, and social interactions);
- behaviours measured by the Child Behaviour Scale (being nurtured or comforted, showing accomplishment, helping another, laughing, crying, clinging to an adult, wandering aimlessly, and being disciplined) were reported to be "essentially similar in the three types of centres";
- non-profit centres were superior to for-profit centres on the caregiver-to-child ratio; special services to children and/or their families; the environment, creativity, and group management scale of the CDA Checklist; caregiver encouragement of children and appropriate limit setting;

- a higher percentage of the staff in government subsidized non-profit centres had no formal education beyond high school. Significantly more staff in private non-profit and in for-profit centres had four years of college. Staff in the three groups of centres were similar in the amount of child care-related training that they had;

- across the three groups of centres there was little difference in the director's formal education or experience;

- workers in privately supported non-profit centres had the highest mean number of years experience in child care; and

- parents were reported to be involved formally in decision-making in 86% of the government-subsidized non-profit centres, in 52% of the privately supported non-profit centres but in only 5% of the for-profit programs.

Weaknesses

- there is no information on the criteria used to select the sub-sample of centres or on the number of centres in each of the three groups; and

- there is no information given on the degree of statistical significance reported for either measure.

Kaplan, M.G., & Conn, J.S. (1984) **The effects of caregiver training, classroom setting, and caregiver performance in eight community day care centres.** *Child Study Journal, 14(2), 79-93.*

Country of origin - United States (Michigan)

Issue

The impact of a 20 hour formal child care training course for centre-based child care providers.

Subject sample

17 female workers whose age ranged from late teens to over age 50 and whose educational level ranged from some high school to a bachelor's degree.

Program sample

8 community-based centres, some in urban and some in rural communities.

Measures

- the ABC -II caregiver behaviour instrument (Honig & Lally, 1981). This codes both desirable provider behaviours, e.g. facilitates language development, and undesirable behaviours, e.g. using negative disciplinary techniques. Inter-observer agreement was .86 or better; and
- program quality was assessed by a checklist devised for this study. It included a rating of the type and range of equipment, the condition of toys and equipment, noise and ventilation in the room, teacher responsiveness, and the extent of child activity restriction. Inter-observer agreement ranged from .73 to .90.

Data analysis

Multivariate analysis of variance.

Findings

- there was a significant pre- and post-training difference in caregiver facilitation of social development ($p < .01$) but no other changes; and
- the pre- and post-training difference in centre environment was significant ($p < .01$) as was the availability of basic resources ($p < .05$). The authors suggest that these findings indicate that the subjects improved the physical condition of the classroom and materials.

Weakness

- the subjects undoubtedly knew that they were being observed and why. In this study, the subjects were only those individuals in a centre's staff pool who had undergone the training program. This knowledge could have influenced their behaviour while they were being observed. There was no measure of the long-term effect on behaviour.

Kontos, S., & Fiene, R. (1986) **Predictors of quality and development in day care**. *Unpublished paper. Pennsylvania Office of Children, Youth, and Families.*

Country of origin - United States (Pennsylvania)

Issue

The impact on the child's intellectual, language, and social development of:

- the degree of child care centre compliance with State licensing regulations;
- the frequency of specific caregiver behaviours;
- the centre's score on a test of preschool environment; and
- the child's family background and prior experience with substitute care.

Subject sample

A randomly selected group of 100 children, 3 - 5 years old, who had attended their centre for over 20 hours/week for at least 6 months. There were equal numbers of males and females from all socio-economic levels.

Program sample

A randomly stratified sample of 10 centres from a pool of 25, 5 were urban/non-profit, 3 were urban/for-profit, and one each was rural/non-profit and rural/for-profit. No other information is provided.

Measures

- an abbreviated version of an instrument used by Pennsylvania to monitor compliance with State regulations (Fiene & Nixon, 1985);
- the Caregiver Observation Form and Scale (Fiene, 1984). This is a list of 29 caregiver behaviours weighted according to their value for child development;
- the Early Childhood Environment Rating Scale (Harms & Clifford, 1980);
- the Slosson Intelligence Test (Slosson, 1983), the intellectual functioning subtest of the Children's Behavior Inventory (Schaefer & Edgarton, 1978), the Test of Early Language Development (Hresko et al., 1979), the preschool questionnaire social functioning subtest of the Children's Behavior Inventory (Behar & Stringfield, 1974); and
- a standardized telephone interview with the mother regarding socio-economic background and the child's past experience with substitute care.

Findings

- o quality, as measured by compliance with State regulations, was positively correlated with non-profit status (r = .65), amount of free play time (r = .54), and smaller rather than larger group size (r = .46);

- o there was an inverse relationship between quality and a large number of children (r = - .47) and centre size (r = -.40); and

- o for four of the six child development measures, family background was the prime and/or only predictor. Centre quality measures were significant predictors of scores on the Preschool Behavior Questionnaire and marginal predictors of the social functioning subtest of the Children's Behavior Inventory. Neither age nor substitute care experience were significant predictors of any measure. These findings suggest that quality, as measured by compliance with Pennsylvania's licensing requirements, has a beneficial effect on social development but no impact on intellectual or language development.

Weakness

- o quality was defined as adherence to State regulations, however, these are not based on empirical research; and

- o there was a small number of centres in each group.

Kontos, S., & Fiene, R. (1987) **Quality, compliance with regulations and children's development: the Pennsylvania Study**. *In D. Phillips (Ed.) Quality in child care: What does the research tell us? Washington, D.C.: National Association for the Education of Young Children, 57-79.*

Country of origin - United States (Pennsylvania)

Issues

- to what extent do individual characteristics of a centre predict scores on a measure of compliance with Pennsylvania licensing standards and with the Early Childhood Environment Rating Scale (Harms & Clifford, 1980); and
- which centre characteristics are associated with positive child outcome on measures of intellectual, language, and social development.

Subject sample

100 randomly selected three-, four- and five-year olds who had attended their centre on a full-time basis for at least six months. The mean age was 53 months.

Program sample

Five urban/non-profit, 3 urban/for-profit, and 1 each of rural/non-profit and rural for-profit. No other information provided.

Measures

a) centre quality

- the Child Development Program Evaluation Scale (Fiene et al., 1978). This examines program administration, environmental safety, child development program and curriculum, health, nutrition, parent involvement, and transportation;
- the Caregiver Observation Form and Scale (Fiene, 1984). This is a 29 item scale to code caregiver behaviours;
- the Child Development Program Evaluation Scale Indicator Checklist (Fiene, 1984). This focuses on staff ratios and qualifications, environmental safety, supervision, presence of health appraisals on children and staff, presence of emergency contact numbers for children, food preparation, use of safety carriers during transportation, and social service agreement forms; and
- the Early Childhood Environment Rating Scale (Harms & Clifford, 1980).

b) centre characteristics

- o staff turnover rate, that is, the proportion of staff positions that had been replaced in the previous year (or two years if the proportion was more representative); and

- o data on centre capacity, caregiver-to-child ratio, group size, director's length of experience, average length of experience of staff, and proportion of staff with four-year degrees. This information was collected during interviews with centre directors.

c) child development

- o the Slosson Intelligence Test (Slosson, 1983), and the intellectual functioning sub-test of the Classroom Behavior Inventory Preschool Form (Schaefer & Edgerton, 1978);

- o the Test of Early Language Development (Hresko et al., 1981) and the Adaptive Language Inventory (Feagans & Farran, 1979);

- o the Preschool Behaviour Questionnaire (Behar & Stringfield, 1974) and the sociability subtest of the Classroom Behavior Inventory (Schaefer & Edgerton, 1978).

d) family background

- o a standardized telephone interview with the mother, this focused on family demographics, the child's supplementary care experience, variety and stimulation in the home, and the parents' childrearing and educational values.

Findings

- o capacity was negatively related to quality, that is, the larger centres were associated with lower scores on the ECERS and the Child Development Evaluation Scale Indicator Checklist;

- o a larger number of children per caregiver was associated with poorer quality as measured by the ECERS and the Caregivers Observation Form and Scale;

- o larger group size was related to better quality on the ECERS;

- o caregiver behaviour, as measured by the Caregivers Observation Form and Scale was positively related to the director's length of experience ($r = .73$) and to the average length of staff experience ($r = .57$). There was a negative relationship between desirable caregiver behaviour and turnover ($r = .-66$);

- family background was the prime and/or only significant predictor of Slosson score and both measures of language development. Neither measure of social development was affected by variation in family background;

- centre quality, as measured by the ECERS, accounted for none or next to none of the variance in children's development once age, family background, and child care history was taken into account;

- centre characteristics in isolation had little impact on child development. Centre capacity contributed 6.8 to 7.0% of the variance on the social deviance score and staff turnover contributed 2.7 to 4.2% of the variance on the same measure. Group size contributed 3.6 to 3.8% to the variance in language development and 2.3 to 3.0% of the variance in Slosson score. Staff turnover contributed 2.9 to 3.5% of the variance on Slosson scores;

- centre characteristics in clusters had more impact on child development than did characteristics in isolation. The variance contributed to intellectual development as measured by the Classroom Behavior Inventory was: director experience and average staff experience (10.9%), average staff experience and proportion of four-year degrees (12.9 to 13.0%); group size, average staff experience, and director experience (11.1 to 11.2%; and group size, average staff experience and proportion of four-year degrees (13.4 to 13.6%);

- the variance contributed by clusters to scores on measures of language development as measured by the Adaptive Language Inventory was: group size, director experience, and average staff experience (11.2 to 11.3%); and director experience and average staff experience (10.9%); and

- group size, average staff experience, and proportion of four-year degrees contributed 11.2% of the variance in the sociability subtests of the Classroom Behaviour Inventory - Preschool.

NOTE: Only one caregiver with a four-year degree had obtained a non child care-related major (psychology). The others were in special education, early childhood education, or elementary school education.

Strength

- used standardized tests to measure the children's intellectual, language, and social development.

Weakness

- there was relatively little variation in quality among the centres as measured by the ECERS. In addition, 6 of the 10 would have qualified for a full license and 3 of the others for a provisional license on the basis of the State instruments used.

Kontos, S., & Stremmel, A.J. (1988) **Caregivers perceptions of working conditions in a child care environment.** *Early Childhood Research Quarterly, 3, 77-90.*

Country of origin - the United States (Pennsylvania)

Issue

What are the links between working conditions and program quality.

Subject sample

40 caregivers, 11 of whom were directors or assistant directors, 17 who were head teachers, 11 who were assistant teachers, with the remainder being aides. Approximately half of them had four-year degrees and 7 had two-year degrees. Mean experience in child care was 6.18 years with the range being 4 - 18 months. All were working with three-, four- and five-year olds.

Program sample

10 centres selected randomly from 25 centres. The sample was stratified to represent the proportion of for-profit versus non-profit and urban versus rural centres in the region in question. Five of the centres were urban/non-profit, 3 were urban/profit, and there was one each of rural/non-profit and urban/for-profit.

Measures

- the Early Childhood Environment Rating Scale (Harms & Clifford, 1980); and
- a questionnaire which focused on the following three areas: job satisfaction; task characteristics, e.g. the number of children for whom the caregiver was responsible; and salary-benefits information. The questions on task characteristics were adapted from Whitebook et al. (1982).

Findings

- typically, job satisfaction was midway between neutral and complete satisfaction (mean = 5.5 on a 7 point scale). Ninety percent of the caregivers indicated that working with children was what they liked best about their job, 32% identified wages and an additional 22.5% identified hours and benefits as what they liked least. Therefore, 54% were dissatisfied in some way with their compensation;
- most of the caregivers' time was spent in play supervision (mean = 18.1 hours per week) and in teaching (mean 11.31 hours per week). There was very little difference in role regardless of the title;
- there was little variation in hourly rate or benefits;

- o the following differences were found between for-profit and non-profit centres:

  - non-profit centres obtained significantly higher scores on the ECERS ($p < .05$)

  - non-profit programs provided better benefits in the following areas: medical insurance ($p < .05$); maternity leave ($p < .05$); and number of vacation days ($p < .05$). The for-profit programs did not provide better benefits than the non-profit programs in any area; and

- o there was no correlation between job satisfaction and the centre's overall ECERS score.

Weakness

- o there was only a small number of centres in each of the for-profit and non-profit groups making it difficult to generalize the results.

McCartney, K. (1984) **Effect of quality of day care environment on children's language development**. *Developmental Psychology, 20(2), 244-260.*

Country of origin - Bermuda

Issue

The impact of the amount of caregiver-child verbal interaction on child language development.

Subject sample

166 children, age range 36-68 months, average age of entry into child care was 19 months. All the children had attended one of the 9 subject programs for 6 months or longer.

Program sample

All 9 centres in Bermuda which had been in operation for over 4 years and accepted children from infancy through preschool. Eight centres were privately owned and the other was government operated.

Measures

- the Early Childhood Environment Rating Scale (Harms & Clifford, 1980). Inter-rater reliability across items was .82;
- an interview with each program director based on the Day Care Environment Inventory (Prescott et al., 1972) to obtain descriptive information about each centre;
- an observational coding system (Wells, 1975) to measure the function and quality of the child's verbal interaction with caregivers and peers. The coding used 4 main categories: control; expressive (e.g. feelings, attitudes); representational (the giving or requesting of information); and social. The child's role as initiator or respondent was also coded. This particular measure was used only with 4 boys and 4 girls randomly selected from each centre (N = 72). Each child was observed for six 10 minute segments, three segments by each of two observers on different days within a two-week period. Inter-observer agreement ranged from .92 to .98;
- the child's intellectual and language development was measured by:
  - the revised Peabody Picture Vocabulary Test (Dunn, 1979)
  - the Preschool Language Assessment Instrument (Blank et al., 1978)
  - the Adaptive Language Inventory (Feagans & Ferran, 1979)

- an experimental communication task with a sub-sample of 8 children from each centre. Each child was required to retell a previously heard story, talk on the telephone to a doll about a T.V. program and pretend party, and complete a story started by the experimenter. Responses were audio-taped and rated by two judges for: comprehension; amount of production; level of production; and verbal spontaneity. The correlation between ratings ranged from .93 to .96

o the child's background and home environment was assessed by:

- a parent interview which included questions about the family's demographics, including present parental education level and occupation, and the child's history of substitute care

- selected items from the Parent as Educator Interview (Schaefer & Egerton, 1979) to assess parent attitudes about child rearing

- maternal intelligence as indicated by the revised Peabody Picture Vocabulary Test (Dunn, 1979).

Data analysis

Possible relationships between centre quality and one or more measures of family background were controlled for by using a stepwise multiple regression procedure to identify significant predictors from the 16 measures. The resultant two predictors were then used in hierarchical multiple regression procedures prior to the measures of the child care environment.

Findings

o the ECERS scores ranged from 66.5 to 191.0 with a mean of 123.2. The range indicates a wide variation in quality;

o average verbal interaction between child and caregiver per 10 minute sample was 15.6 with the range being 4.4. to 27.1;

o when the effects of family background, home environment, child age at entry into child care, child age at testing, and child length of time in substitute care were statistically controlled, the overall ECERS score predicted:

- child's scores on the Peabody Picture Vocabulary Test ($p < .05$)

- child's score on the Preschool Language Assessment Instrument ($p < .01$)

- child's score on the Adaptive Language Inventory ($p < .001$)

- child's score on the communication task ($p < .001$)

- when the effects of family background, home environment, and child's years in substitute care were statistically controlled, the amount of verbal interaction between child and caregiver predicted:

  - child's score on the Peabody Picture Vocabulary Test ($p < .10$)
  - child's score on the Preschool Language Assessment Instrument ($p < .10$)
  - child's score on the Adaptive Language Inventory ($p < .001$)
  - child's score on the communication task ($p < .05$)

  The above findings indicate that verbal interaction was most predictive of pragmatic language skills;

- the proportion of control utterances from the caregiver was a negative predictor of all four measures of language development with the amount of variance accounted for ranging between 3.4% and 25.8%;

- the number of functional utterances by target children with peers did not predict test scores on any of the four measures; and

- the number of child conversation initiatives with peers was a negative predictor of three of the measures of language development.

Conclusion

On the basis of correlations between subtests of the ECERS and the four language tests, the researcher suggests that children's language development is enhanced by a structured program where caregivers provide organization and there is more formal group programming than free-play time.

McCartney, K., Scarr, S., Phillips, D., & Grajek, S. (1985) **Day care as intervention: comparisons of varying quality programs.** *Journal of Applied Developmental Psychology, 6, 247-260.*

Country of origin - Bermuda

Issue

The impact of the quality of the child care setting on the development of intellectual, language, and social skills in disadvantaged children.

Subject sample

22 children in a high quality centre compared to 72 children attending 7 other programs of varying quality. All the children were age 3 or older and had attended their centre for at least 6 months on a full-time basis. Children in the two groups were matched for racial background (all black), mother's occupational status, mother's score on the Peabody Picture Vocabulary Test (mean for one group was 77.50 and for the other was 78.36), and mother's education (mean for one group was 11.57 and for the other was 11.93).

Program sample

Eight centres, one, called the intervention program, was rated as having the highest quality on the basis of having received the highest score on the Early Childhood Environment Rating Scale (Harms & Clifford, 1980), having the most favourable caregiver-to-child ratio, and the second highest score on a measure of caregiver and child verbal interaction (see McCartney, 1984). The intervention program had a score of 191.0 on the ECERS, a verbal interaction score of 26.5, and a caregiver-to-child ratio of 1:7.3. The ECERS scores for the other programs ranged from 152.5 to 66.5, the verbal interaction scores ranged from 27.1 to 4.4, and the caregiver-to-child ratio from 1:9.7 to 1:15.0.

Measures

- the Early Childhood Environment Rating Scale (Harms & Clifford, 1980). Inter-rater agreement was .82;
- a test of the amount and type of caregiver and child verbal interaction (see McCartney, 1984). Inter-rater agreement ranged from .92 to .98;
- the Peabody Picture Vocabulary Test (Dunn, 1979);
- a questionnaire to assess family background (see McCartney, 1984);
- the Preschool Language Assessment Instrument (Blank et al., 1978)
- the Adaptive Language Inventory (Feagans & Farran, 1979);
- a communication test (see McCartney, 1984). Inter-rater agreement ranged from .93 to .96;
- the Classroom Behavior Inventory (Scheafer & Edgerton, 1978); and

- the Preschool Behavior Questionnaire (Behar & Stringfield, 1974).

Findings

Children in the intervention program obtained higher scores on:

- the Peabody Picture Vocabulary Test (mean = 86.50 versus mean = 82.24);
- the Adaptive Language Inventory ($p < .001$);
- an evaluation of the child's degree of consideration for others by the parent ($p < .01$) and the caregiver ($p < .001$);
- an evaluation of the child's sociability by the parent ($p < .05$) and by the caregiver ($p < .001$);
- the child's estimated intelligence by the caregiver ($p < .001$); and
- the child's task orientation as estimated by the caregiver ($p < .01$).

There were no significant differences between the groups on the other measures.

Weakness

- there is no indication whether or not the two subject groups were similar on initial intellectual functioning.

McCartney, K., Scarr, S., Phillips, D., Grajak, S., & Schwartz, J.C. (1987) **Environmental differences among day care centres and their effects on children's development.** *In E.F. Zigler and E.W. Gordon (Eds.) Day Care: Scientific and Social Policy Issues. Boston, Massachusetts: Auburn House, 126-151.*

A more complete version of the same study is presented by Phillips et al. (1987). This study is presented in this annotated bibliography on pages 79-81.

Pence, A.R., & Goelman, H. (undated) **Can you see the difference? Regulation, training, and quality of care in family day care** *Unpublished manuscript, University of Victoria.*

Country of origin - Canada (Vancouver, B.C.)

Issue

The relationship between various family child care provider characteristics and quality of care.

Subject sample

46 family child care providers who were recruited through lists provided by local licensing authorities, membership lists of local child care associations, and advertisement. Due to caregiver self-selection, this was not a random sample. There was a mean of 6.8 children cared for in each home (full- and part-time basis) but the mean cared for at any one time was 4.8. Providers had been offering child care services for an average of 35.06 months and for an average of 44.02 hours per week.

Measures

- the Home Observation for Measurement of the Environment Scale (Caldwell & Bradley, 1979). This measures the types of stimulation available for 3 to 6 year olds in the home;
- the Day Care Home Environment Rating Scale (Harms et al., 1983); and
- a structured interview with each provider based on a similar instrument used by the researchers in previous research (Goelman & Pence, 1988).

Procedure

The two scales were administered by trained observers and the inter-rater agreement ranged from .79 to .89. The sample of caregivers was divided into two equally sized groups on the basis of a median split on the combination of their scores on the Home Observation for Measurement of the Environment Scale and the Day Care Home Environment Rating Scale. There were no significant differences between the two groups on any of the sociodemographic variables which were examined.

Findings

- the two groups varied on the following:
  - having a provincial family day care license, 100% of the "high quality" group had such a license versus 39% of the other group ($p < .001$)
  - having received formal community college training in family child care provision ($p < .001$). Most of the "high quality" providers had received such training

- commitment to family child care provision as professional employment and intention to continue as a family child care provider ($p < .005$). "Low quality" caregivers were more likely to be motivated by seeking a playmate for their own child and/or to earn extra money while their preschooler was at home. They were also more likely to express the intention of ceasing to provide child care once their child was in school.

o specific training to be a family child care provider differentiated the groups at a significant level, ($p < .001$), general courses on child development did not differentiate the groups;

o "high quality" providers were more likely than providers in the other group to belong to a family child care association (56.5% versus 8.7%, $p < .001$);

and

o "high quality" caregivers were better equipped and engaged in more story time, music, arts and crafts, outdoor play, word or letter games, puzzle activities, and dramatic play. Note that this finding is based on self-report.

Conclusions

The researchers conclude that higher quality family child care providers are licensed, trained specifically as family child care providers, have support through a family child care association, and have professional pride. Pence and Goelman suggest that all four factors need to be present. They acknowledge that the difference may not be the result of licensing and training, rather, caregivers who are committed to family child care provision as a career seek training and a licence.

Pepper, S., & Stuart, B. (1989) **Quality in Family Day Care**. *Paper presented at the annual meeting of the Canadian Psychological Association, Halifax, Nova Scotia. Available through Dr. Pepper at the University of Western Ontario.*

Country of origin - Canada (Ontario)

Subject sample

161 supervised family child care providers who were recruited through 19 family day care agencies and 79 unsupervised (informal) child care providers who were recruited primarily with advertisements.

Measures

- each caregiver was observed in his/her home for 2 -3 hours while the children were present;
- each caregiver then completed four questionnaires: a biographical questionnaire; an attitude questionnaire (no additional information given about this instrument); the Personality Research Form (Jackson, 1974); and the Jackson Vocational Interest Form (Jackson, 1977);
- the Day Care Home Environment Rating Scale (Harms et al., 1982);
- a 100 point rating scale used by observers to indicate their global judgement of the overall quality of each home compared to others that they had encountered in their experience as agency Home Visitors.

Findings

- the mean score on the Day Care Home Environment Rating Scale was 4.98 for supervised caregivers and 4.00 for unsupervised caregivers ($p < .001$);
- the mean score on the rating scale used by the Home Visitors was 70.89 for supervised caregivers and 59.38 for unsupervised caregivers ($p < .001$);
- both groups obtained similarly high scores (6.11 and 6.08 respectively) on the DCHERS item which assesses general quality of caregiver and child interaction.
- Although supervised homes received higher scores in regard to helping children to understand language, there was no significant difference in the ratings of the two groups in regard to informal language use, helping children to use language, or helping children to reason; and

- the two groups differed significantly on only 18 of the 34 DCHERS items. Statistically significant differences favouring the supervised caregivers emerged on 5 of the 8 items which dealt with physical care, 3 of the 6 items pertaining to space and furnishings, and 5 of the 10 items assessing learning activities. The learning items involved providing a varied and balanced schedule of daily activities, frequent and varied art activities, educational use of television, interactive supervision of play, and cultural awareness.

Weakness

- the observers for the supervised caregivers were Home Visitors who worked for the same agency while the observers for the unsupervised caregivers were research assistants hired for the project. As a result, observers for the supervised sample were more likely to be acquainted with the caregiver than was the case with the unsupervised sample. The researchers express the opinion that while the potential for bias existed, it did not occur. If the observers had been more lenient with the supervised caregivers that sample would have received higher ratings on all or most of the 34 individual DCHERS items.

Perry, C. (1977) **Cross cultural study on the effect of space and teacher controlling behavior**. *ED 131 351.*

County of origin - United States Virgin Islands

Issue

The effect of available classroom space on teacher behaviour.

Subject sample

20 Head Start teachers, the majority of whom were English-speaking, black, high school graduates.

Program sample

10 classrooms with an available space (square footage of the room with equipment and furniture subtracted) ranging from 9 - 12 square feet per child and 10 classrooms where the space ranged between 33 - 73 feet per child.

Measure

- each teacher was observed for 90 minutes in each of three situations: free play; group activities; and self-care routines. Behaviour was coded using a modification of the Control/Non-control Scale of the Flanders Interaction Analysis (reference not given). The inter-rater agreement was 87%.

Findings

- the mean percentage of controlling behaviour (e.g. directing, restricting, or other behaviour to impose the teacher's goals on the children) was 16.2% in the classrooms with more space and 46.7% in the classrooms with less space.

Weakness

- little background information is provided about the rating scale.

Peterson, C., & Peterson, R. (1986) **Parent-child interaction and day care: Does quality of day care matter?** *Journal of Applied Developmental Psychology, 7, 1-15.*

Country of origin - Canada (Newfoundland)

Issue

What is the impact of the quality of the child care arrangement on the interaction between mother and child.

Subject sample

Three groups of 3 - 5 year olds, group one had 24 children with a mean age of 50.6 months who were enrolled in two high quality centres. Group two consisted of 18 children, mean age 47.7 months, who were enrolled in two poor quality centres. The third group consisted of 24 children, mean age 47.9 months, who had never been in substitute care. Both groups of children in child care were enrolled on a full-time basis. Group one children had been in their centres for an average of 25 months, range 6 months - 4 years. Group two children had been in their centres for an average of 23 months, range 6 months to 3.5 years. There were no significant differences between the three groups on parent education or family socioeconomic status.

Program sample

4 non-profit centres none of which were affiliated with a university. Two were rated as high quality and two as low quality on the basis of a two-day observation checklist devised by the researchers. This checklist examined: the availability of different types of equipment and activities; the percentage of time the caregivers were involved with the children versus non-involved (e.g. talking to another adult); the extent to which the furniture was designed for children; the play environment; and the curriculum. The "high quality" centres had a mean caregiver-to-child ratio of 1:9.8 while the ratio for the "poor quality" centres was 1:14.5.

Measures

- a laboratory session between the child and the mother involving three structured activities: child ignored; child attended to; and child requested to perform a difficult task. Each episode lasted approximately 10 minutes and was observed by a person blind to the purpose of the test or the group membership of the child. Sessions were tape recorded then scored by two different people. The inter-rater reliability ranged between 95 - 100%.

Findings

- caregivers in centres rated as poor quality talked with another adult 50% of the time and were involved with the children 24% of the time. Caregivers in "high quality" centres talked with another adult 25% of the time and were involved with the children 68% of the time;

- children in centres rated as poor quality were less compliant when requested to do the laboratory test than were children from the other centres ($p < .05$); and

- children in the poorer quality centres tended to limit their verbal interaction with their mothers to single statements as opposed to the sustained dialogue between the mothers and children who were in centres rated as high quality ($p < .001$).

Phillips, D.A., McCartney, K., & Scarr, S. (1987) **Child care quality and children's social development.** *Developmental Psychology, 23 (4), 537-543.*

Country of origin - Bermuda

Issue

The impact of variation in centre quality on children's intellectual, language, social, and emotional development.

Subject sample

166 children, age range 36-68 months, all of whom had attended their centre for 6 months or more. The majority were black and the average age of entry into child care was 19 months.

Program sample

All 9 centres in Bermuda which had been in operation for more than 4 years and accepted children from infancy through preschool. Eight were privately run and one was government operated. Caregiver-to-child ratios ranged from 1:5.7 to 1:15 (the mean was 1:10.5).

Measures

a) centre

- the Early Childhood Environment Rating Scale (Harms & Clifford, 1980). Inter-rater agreement across items was .82;
- an interview with centre directors based on the Day Care Environment Inventory (Prescott et al., 1972). This included determination of the director's years of experience; the caregiver-to-child ratio; staff turnover rates; amount and variety of play equipment; and parental involvement;
- an observational coding system (Wells, 1975) used with 8 children per centre to determine the number of functional utterances directed to the children by caregivers during six 10-minute time samples. McCartney (1984), in a companion article based on the same study, reports the inter-rater agreement as being between .92 and .98;

b) child

- the preschool form of the Classroom Behaviour Inventory (Schaefer & Edgerton, 1978) completed by the caregiver. This yields factors for intelligence, consideration, sociability, task orientation, and dependence;

- the Preschool Behavior Questionnaire (Behar & Stringfield, 1974). This screens for aggression, anxiety, and hyperactivity; and
- information from the parent about the child's prior experience in child care, e.g. age of first enrolment, number of arrangements.

c) family

- an interview with the parent to obtain demographic information, information about parent education and current occupational status, etc.; and
- items from the Parent as Educator Interview (Schaefer & Edgerton, 1977) to assess parental values about child learning and development.

Data analysis

The impact of family characteristics was controlled for by using a stepwise multiple regression procedure to identify significant predictors from the 16 family factors. The resultant two predictors were then used in hierarchical multiple regression procedures prior to the measures of centre environment.

Findings

- the total scores on the ECERS ranged from 66.5 to 191.0 (mean = 123.2). This indicates that there was a real variation in quality among the centres;
- parents who placed a high value on social skills selected centres with higher scores on the ECERS than did parents who put a high value on conformity ($p < .01$);
- age of entry into child care and length of time in child care were poor predictors. Children who had spent less time in child care were rated by caregivers as more dependent and anxious and children entering child care at an earlier age were rated by caregivers as more anxious. However, the "anxiety" scores for these children were not outside the normal range;
- when the influence of age, length of time in child care, and family background was statistically controlled, the overall quality of the centre as measured by the ECERS total score predicted:
  - degree to which the child was rated as being considerate by the parent ($p < .01$) and the caregiver ($p < .001$)
  - the degree to which the child was rated as being sociable by the parent ($p < .05$) and the caregiver ($p < .001$)
  - intelligence and task orientation, as rated by the caregiver (both $p < .001$)
  - anxiety, as rated by the caregiver ($p < .01$). Caregivers in higher quality centres rated the children as more anxious. However, the "anxiety" scores were not outside the normal range.

- director's experience ranged from 11.3 to 24.5 years. Director's length of experience was a negative predictor of caregiver ratings of the child as considerate ($p < .01$), dependent ($p < .001$), or sociable ($p < .001$). Caregivers in centres where the director had more experience rated the children as less aggressive ($p < .05$) and as less anxious ($p < .01$). The researchers suggest that these findings imply that children were better adjusted but less socially competent in centres where the director has more experience;

- child-caregiver verbal interaction was a positive predictor of children being rated as more considerate by parents ($p < .05$) and by caregivers ($p < .001$). Larger amounts of verbal interaction were associated with children being rated by caregivers as more sociable ($p < .001$), intelligent ($p < .001$), and task oriented ($p < .001$); and

- more favourable caregiver-to-child ratios were associated with higher parent rating of the child as considerate ($p < .05$) and higher caregiver rating of the child as anxious ($p < .001$).

Strength

- the effects of family background and age of entry into child care were statistically controlled when the analysis was done.

Rohe, W., & Nuffer, E.L. (1977) **The effects of density and partitioning on children's behavior**. *Paper presented at the annual conference of the American Psychological Association, San Francisco, California. ED 144-721*

Country of origin - United States

Issue

The impact of density on children's behaviour.

Subject sample

12 children, age range 40 - 68 months. No other information is provided.

Program sample

There is no general information provided about the centre. Density was manipulated by closing a room divider which cut the playroom's usual size (22 by 33 feet) in half while maintaining the same number of children. Partitioning was manipulated by either having a completely open playroom or by introducing partitions to make four different play areas. Every child was exposed to:

- low density with partitioning;
- low density without partitioning;
- high density with partitioning; and
- high density without partitioning.

Measure

- the children were exposed to a different and randomly ordered experimental condition each day for a total of 25 consecutive days. Each child was observed for one minute at a time, three times a day. Inter-observer agreement was .80 or higher.

Findings

- in high density conditions both associative play and cooperation decreased ($p < .05$), activities requiring concentration, such as puzzles, decreased and the use of the jungle gym increased;

- with partitioning, cooperative behaviour increased ($p < .05$) and aggression decreased. Partitioning was particularly effective in lowering aggression and increasing cooperation in high density situations;
- girls spent less time in solitary or destructive behaviour than did boys ($p < .05$) and more time in associative play ($p < .01$); and
- the interaction of low density and partitioning resulted in more involvement in tasks requiring concentration, such as puzzles ($p < .01$) and more time spent in constructive activities ($p < .01$).

Weakness

- no information is provided about the observation scale.

Ruopp, R., Travers, J., Glantz, F., & Coelen, C. (1979) **Children at the center**. *Final Report of the National Day Care Study. Cambridge, Massachusetts: Abt Associates Inc.*

Country of origin - United States

Issue

The impact of caregiver-to-child ratio, group size, caregiver qualifications, and caregiver-child interaction on children's development.

Subject sample

1,800 three-, four- and five-year old children, 65% black, the majority of the families were on welfare or low-income and slightly more than half were single-parent.

Program sample

64 centres in Atlanta, Detroit, and Seattle for a total of 120 classroom groups. The centres had a variety of auspices but all were full-day operations which had been in operation for at least one year. The centres were known, before the start of the study, to vary in caregiver-to-child ratios, group sizes, and staff qualifications. Most of the ratios were between 1:5 and 1:9 and most class sizes varied between 12 and 24. Caregiver qualifications varied from high school graduation only to a masters level in early childhood education.

Procedure

- Phase I was start-up and included telephone interviews to collect basic information from centres and to select the 64 finally used in the study;
- Phase II involved observation and data collection in the 64 centres; and
- Phase III involved 49 centres across all 3 cities where the caregiver-to-child ratio was manipulated and 8 centres in Atlanta where both the caregiver-to-child ratio and caregiver education were manipulated.

Measures

- the Preschool Inventory. This measures knowledge of things such as shapes and parts of the body;
- the Peabody Picture Vocabulary Test (Dunn, 1979);

- observation of the behaviours of both the child and the caregiver using instruments which had been used in previous research and were based on frequency counts of specific behaviours, e.g. for adults, activities such as correcting children or comforting a child, for children, activities such as complying with an adult request or aimless wandering; and

- interviews with caregivers regarding their qualifications and experience.

Findings

a) Phase II

- a group size of 12 versus one of 24 was consistently associated with: more caregiver-child social interaction; children who showed more cooperation, verbal initiative, and reflective/innovative behaviour; children who showed less hostility and conflict and were less frequently observed to wander aimlessly; and children who made higher gains on the two developmental tests. To reduce possible cultural or socioeconomic bias, each child's scores at year's end were compared with his/her scores at the beginning of the year rather than centres being compared on the basis of average scores for all children;

- caregiver-to-child ratio, within the range of 1:5 to 1:10 did not show strong or consistent relationships with either child or caregiver behaviour. Ratio was not related to test scores;

- child care-related education or training among lead teachers was associated with higher levels of caregiver-child social interaction and children who showed more cooperation and greater task persistence and were less frequently uninvolved in activities. In centres with a higher overall proportion of caregivers with child care-related education or training, children made greater gains on the Preschool Inventory;

- neither total years of child care experience, nor total years of formal education, nor degrees or certificates unrelated to child care were related to any of the measures of quality used in this study (quality of caregiver behaviour, quality of caregiver-child interaction, child test scores);

- the benefit of small group size was observed even when the caregiver-to-child ratios were kept constant, for example, groups of 12-24 children with 2 caregivers had, on average, better outcomes than groups of 24-28 children with 4 caregivers;

- gains on the Peabody Picture Vocabulary Test were more rapid in centres where the caregivers showed higher levels of interaction with the children and less in centres where the caregivers spent a significant proportion of their time simply observing the children; and

- gains on the Peabody Picture Vocabulary Test were less in centres with a high emphasis on group rather than individual activities.

b) Phase II

- o neither raising the caregiver-to-child ratio or raising the caregiver education in isolation was associated with increased quality; and
- o only 4 centres had increases in both ratio and caregiver education, the researchers concluded that this was too small a sample to give meaningful data.

Discussion

The researchers suggest that the impact of group size rather than caregiver-to-child ratio may be attributable to the fact that a group was generally staffed by a trained lead teacher and aides. Therefore, the number of children with whom the lead teacher interacted was more affected by total group size than by ratio. In large groups, an aide might take a small group of children for a short period for a particular activity, but most of the time the group remained together. As a result, the effective caregiver-to-child ratio for the lead teacher was the whole group.

Weaknesses

- o findings are mostly reported on the basis of percentage differences, not degree of statistical significance; and
- o there is no report of the degree of inter-observer agreement.

Schom-Moffat, P. (1984) **The bottom line: wages and working conditions of workers in the formal day care market**. *Submitted to the Task Force on Child Care, Ottawa.*

Country of origin - Canada (survey of all the provinces, the Yukon, and the Northwest Territories)

Issue

The wages and working conditions of employees in licensed group child care centres and private home day care agencies.

Sample

A random sample of 85 centres, representing 279 employees, and 56 private home day care agencies. All operated on a full-time basis and primarily served children under the age of 6. Forty-four (60%) of the centres were non-profit, 23 (31%) were for-profit, and 6 (8%) were municipal. No information is provided on the auspices of the private home day care agencies.

Measures

- a questionnaire to the employees of all the centres. This was the same questionnaire as was used in the United States' Child Care Staffing Study (Whitebook et al., 1990); and
- a structured telephone interview used with all the private home day care agency providers.

Findings

a) centres

- 24% of the respondents stated that they were not planning to stay in the child care field. The primary reason cited for leaving child care was the low salary and low status of a caregiver;
- 61% of the respondents had been employed in their current centre for less than one year;
- 45% of the respondents reported 2 or more hours of unpaid work per week. Only one-quarter reported being paid for preparation or planning time;

- o the average hourly wage was dependent on a number of factors, such as the worker's classification (director, frontline caregiver, aide), the centre's auspices, and whether or not the centre was unionized. The average hourly wage reported by respondents from for-profit centres was $5.47 versus $7.46 for non-profit centres and $10.58 for municipal centres. The average hourly wage reported from unionized centres was $9.90 versus $6.63 for non-unionized settings;

- o 75% of employees in for-profit centres reported that they receive paid vacation versus 84% from non-profit centres; and

- o a larger proportion of both municipal and non-profit centres than for-profit centres were reported as providing a yearly cost of living increase, periodic inservice training, paid preparation time, and as having a formal grievance procedure.

b) family day care agency providers

- o providers tended to either be young mothers providing child care in order to be at home with their own child or women in their late 40's or 50's many of whom lacked the experience to get a job in the labour market;

- o 32% of providers had not completed high school and an additional 39% had only high school graduation. Only 9% of the providers had any formal child care related education;

- o the net average wage was $2.29. This was calculated from the number of children in care on a full-time basis minus expenses; and

- o only 17.9% reported having received any in-service education.

Weaknesses

- o there was only a 61% return rate among centre employees. This introduces an unknown bias which may have an impact on findings such as the percentage who reported intending to leave the field; and

- o there is no information whether between group differences, e.g. between for-profit and non-profit centres, are statistically significant.

Shapiro, S. (1975) **Preschool ecology: A study of three environmental variables.** *Reading Improvement, 12, 236-241.*

Country of origin - United States (New York City)

Issue

The impact of caregiver-to-child ratio, class size, and density.

Subject sample

274 four-year olds. No other information is provided.

Program sample

17 preschool classrooms, all operating on a half-day basis. Classes were categorized as small (14 or fewer children), medium (15 - 19 children) or large (20 or more children). Caregiver-to-child ratios varied from 1:5 to 1:11, and the amount of classroom space varied from 29 - 52 square feet per child.

Measure

- 2 trained observers used a time-sampling technique to obtain 20 observations per child. Inter-observer agreement was 85%.

Findings

- there was no significant relationship between class size and social interaction;
- when the caregiver-to-child ratio was 1:8 there was a larger number of contacts than when it was 1:11. However, when the ratio was less than 1:8 there was a decrease in individual contacts. When the class exceeded 22, increasing the caregiver-to-child ratio by adding another caregiver did not increase the individual child-caregiver contact; and
- child non-involvement in activities was 26% of the time in classroom with less than 30 square feet per child, 15% in classrooms with 30 - 50 square feet per child, and 20% in classrooms with over 50 square feet per child.

Weaknesses

- no information is provided about the children's backgrounds or the quality of the centres; and
- there is no information on whether or not differences were statistically significant.

Smith, P.K., & Connolly, K.J. (1986) **Experimental studies of the preschool environment: The Sheffield Project**. *In S. Kilmer (Ed.)* Advances in Early Education and Day Care, *Vol. IV. Grenwich, Conn: JAI Press, 27-67.* *

Country of origin - England

Issue

The impact on children's behaviour when density, group size, and amount of toys are varied.

Subject sample

Three- and four-year olds from skilled working class or middle class families. In all experimental manipulations, there was an equal number of boys and girls. No other information is provided.

Program sample

Several play groups which operated two half-days a week. There were 12 - 22 children per group and three caregivers, one of whom had training in nursery school work.

Procedure

The study was conducted over a three year period using two different groups of children each year. In any given experiment both groups of children received identical environmental manipulations. This was done to reduce the likelihood that the findings were associated with a particular group of children.

- Year I - systematic variation in the amount of floor space available per child and in the amount and type (large items only versus small items only) of equipment;
- Year II - systematic variation in the group size, as follows: 12, 14, 20, 22; and
- Year III - the two experimental groups experienced a "free play" program while the other two groups had "structured activities." Each regime operated for an eight-month period.

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* Some details are from another report on the same study which was published as Connolly, K.J., & Smith, P.K. (1978) Experimental studies of the preschool environment. Journal of Early Childhood, 10(2), 86-95.

Measures

- o direct observation by one of the researchers using a time sampling technique whereby the focal child was observed for 40 seconds at a time. The observer noted facial expression, different types of vocalizations, visual and physical contact with others, locomotor behaviour, and stereotyped behaviour. The observer dictated into a portable tape recorder and the data were transcribed later. Periodic inter-observer checks resulted in an agreement which ranged between 80 - 95%; and

- o some, but apparently much less, focal sampling of the caregivers, scan sampling of the children, incident sampling (all occurrences of certain behaviours), plots of children's spatial position, and ratings of children by the caregivers.

Findings

- o there were no significant differences in children's behaviour when space was varied to give an average of 75, 50, or 25 square feet per child. However, when density was reduced to 15 square feet there was an increase in aggression ($p < .05$) and a decrease in general social behaviour;

- o availability of more equipment under the same density conditions resulted in greater dispersal of children, a reduction of competition over popular equipment, but also a reduction in cooperative play. When fewer pieces of equipment were available, there was an increase in aggression ($p < .05$);

- o when group size was increased, there was not an increase in the number of caregivers, therefore, the number of children per caregiver also increased (1:3.5 to 1:12). With the less favourable ratios, there was a greater proportion of prohibition and routine and fewer "play" utterances by caregivers (all $p < .05$ or better). Children more often addressed a caregiver without getting a reply and the length of child-caregiver interactions was shorter;

- o children in small groups showed more fantasy play than when they were in large groups ($p < .001$). Children in large groups spent more time in unoccupied looking around ($p < .001$); and

- o the groups which received the free play condition showed more social interaction with peers and more spontaneous fantasy play than did the children receiving structured activities. The groups which received structured activities showed an increased attention span which was maintained after the experimental condition ceased. However, at this time, the rates of aggression among these children increased sharply. The researchers suggest that the children in the structured activities groups gained concentration skills at the expense of social competence with peers.

Strengths

- o used two groups in each experimental situation, thereby increasing the generalizability of the findings.

Weaknesses

- o no standardized observation instrument;
- o the primary observer was one of the researchers who knew the hypotheses being tested. The second observer appears to have been introduced only for periodic spot tests. As a result, there may have been some unconscious bias in the observations; and
- o there is no information provided on the number of observations per child or per experimental situation.

Smith, A.B., McMillan, B.W., Kennedy, S., & Ratcliffe, B. (1989) **The effect of improving preschool teacher-child ratios: An "experiment in nature".** *Early Child Development and Care, 41, 123-138.*

Country of origin - New Zealand

Issue

The impact of improved caregiver-to-child ratios on children's and caregiver's behaviour.

Subject sample

6 children randomly selected for each of 4 experimental and 4 control programs. The children were all middle-class and ranged in age from 38 -53 months. Due to attrition, complete data were only obtained on 35 children. All the children attended on a half-day basis, 3 or 5 days a week.

Program sample

4 programs which had 2 caregivers for the duration of the study and 4 which had 2 caregivers when the baseline data were collected but then acquired a third caregiver. Each program operated with 40 children at a time. All the caregivers had received training at a Teachers' College, their average length of experience was 7 years with the range being 0 - 18 years. Initially all 20 teachers were to be subjects but due to absences complete data were only collected on 13.

Procedure

Baseline data were collected on all 8 programs while each was operating with only 2 caregivers. Additional data were collected twice, with a 4 month interval, on the 4 programs which acquired a third caregiver.

Measures

- the target children were observed for 30 minutes at each data collection session for a total of 90 minutes using an interval-type observation instrument. The behaviour categories observed were: caregiver-child interactions; child-child interactions; child emotional behaviour; and child activities. The definitions used were based on Parten (1932). Inter-observer agreement was 96.8 -99%; and

- the caregivers were observed for two 30 minutes periods on each of two separate days at each of the three data collection periods for a total of 3 hours. The behaviour categories observed were: caregiver-child interactions; caregiver-parent interactions; caregiver-caregiver interactions; and caregiver activity. Inter-observer agreement was 90.6 - 93.3%.

Findings

- the introduction of a third caregiver was associated with a reduction in the children's negative behaviour towards peers to 45% of baseline at the second test time and 6% at the third ($p < .01$); and
- the introduction of a third caregiver was also associated with children playing more positively with peers and interacting more with the caregivers and caregivers talking more with parents and more involved in the children's play (not statistically significant).

Strengths

- the difference in ratio occurred in situations where all other variables remained the same.

Weaknesses

- the large number of absences of both children and caregivers reduced the amount of useable data. No information is provided about the missing individuals; and
- the actual ratio in the two-caregiver programs was increased by the presence of Teacher College students. At the time of the final testing these two centres actually had caregiver-to-child ratios of 1:7.3 versus 1:6.6 for the three-caregiver programs. Therefore, there was little difference in actual ratio between the control and the experimental programs.

SPR Associates Inc./National Mail Surveys Inc. (1986) **An exploratory review of selected issues in for-profit versus not-for-profit child care**. *Toronto. Prepared for the Special Committee on Child Care, Ottawa.*

Country of origin - Canada (survey of all provinces and the Northwest Territories)

Issue

The impact of auspices on various indicators of quality.

Sample

927 centres from across the country, included for-profit, non-profit, and government-operated. No additional information is provided.

Measures

- a global rating of each centre by its provincial or territorial government consultant on the basis of its quality relative to provincial standards; and
- a detailed rating by government consultants of the centres they considered to be best, worst, and typical in each auspices using a list of 27 factors provided by the research consultant and assumed to be associated with quality (10 items related to activities believed to enhance child development, 9 items related to child care as a service to parents, 2 items related to community support, 2 items related to basic safety, and 3 items related to administration).

Data analysis

Simple and multiple regression analysis and discriminant analysis.

Findings

a) overall ratings (not using the 27 item list)

- government-operated centres were perceived to provide the best care. Four-fifths were ranked as better than adequate relative to provincial or territorial standards and only one was rated as poor;
- non-profit centres were perceived to provided better care on average than for-profit centres. Half the non-profit centres were rated as better than adequate relative to provincial or territorial standards while only one-third of small for-profit centres were so rated. The large chain for-profit centres had the largest percentage (56%) of ratings as "adequate" that is, meeting but not exceeding provincial or territorial standards;

- o in regard to providing care that is better than adequate, non-profit centres tended to rank above small for-profit centres which in turn ranked above large chain for-profit centres (50%, 32% and 29% respectively); and

- o the differences in overall quality among centres within each auspices was far greater than the differences between auspices. Statistical analysis showed that auspices could account for only 8.5% of the variation in quality among centres.

b) detailed ratings (27 item checklist)

- o on all 10 items related to enhancing child development, government and non-profit centres tended to be rated higher than the for-profit centres. This was particularly true for physical environment and staff qualifications. The two types of non-profit centres received similar ratings for caregiver-to-child ratios, caregiver-child interaction, and staff turnover. Small non-profit centres tended to be rated better than chain for-profit centres in programming, caregiver-child interactions, staff stability, staff qualifications, and parental involvement. The two types of for-profit centres received similar ratings for caregiver-to-child ratios, group size, and physical environment;

- o on the 9 items dealing with centres' ability to meet the needs of working parents the results were less clear-cut with centres under different auspices being rated highest on different items. In regard to parental support (e.g. parent education, formal and informal counselling, information and referral) non-profit centres were rated as better than small for-profit centres which in turn were rated as better than chain for-profit centres;

- o on the items related to administration, government-operated centres ranked higher than non-profit centres which ranked higher than for-profit centres; and

- o an analysis using the 27 items to determine if centres could be accurately classified on the basis of their ranking resulted in the following correct classifications:

  - government - 72.0%
  - non-profit - 65.1%
  - small for-profit - 62.1%
  - chain for-profit - 55.7%

  This illustrates the variation in quality within each auspices type.

c) the impact of government subsidy

- o a multiple regression analysis was used to examine the relationship between quality, as defined by centre rating on the 27 items, and each of auspices, presence of subsidized children in the centre, and centre size. Auspices was found to account for roughly one-eighth of the variation in quality while subsidy accounted for a larger amount.

The above finding should not be interpreted as necessarily indicating that there is an association between government subsidy and quality since 90% of the centres had subsidized children.

Weaknesses

- the evaluation of the centres was not conducted by an objective outside person. The government consultants were informed about the purpose of the study, therefore, their bias for or against a particular auspices could have influenced their ratings. There was no double-check on rating, for example, through on-site visits by the researcher;

- the data were retrospective and relied on the informants' memory of the centre;

- the initial ratings were done on the basis of provincial or territorial standards, these are not uniform; and

- the analysis of the impact of subsidization was not reported by province. At the time of the study some provinces provided for-profit centres with subsidization. If the differences in "quality" found between for-profit and non-profit centres occurred in provinces where for-profit centres received subsidization this would negate any suggestion that the difference was a function of government funding in non-profit centres.

Stuart, B., & Pepper, S. (1988) **The contribution of caregiver's personality and vocational interests to quality in licensed family day care.** *Canadian Journal of Research in Early Childhood Education, 2(2), 99 - 109.*

Country of origin - Canada (Ontario)

Issue

The impact of caregiver education and training on quality as measured by the Day Care Home Environment Rating Scale. (The research also explores caregiver personality variables and vocational interests compared to a group of college women. This aspect of the research is not reported here).

Sample

161 family-based child care providers who were recruited through 19 private home day care agencies. The number of participants recruited from municipal, private non-profit, and private for-profit agencies was 70, 59, and 26 respectively. All but 33.5% had graduated from secondary school (grade 12), but only 13.1% had received formal post secondary school training in early childhood education or a related field. Experience in providing supervised family child care ranged from 1 month to 13.5 years (mean = 2.57 years). In addition to their supervised experience, 61.5% reported having provided unsupervised child care.

Measures *

- the Day Care Home Environment Rating Scale (Harms et al., 1982);
- agency home visitor global rating of the home in comparison to other homes with which she was familiar; and
- a biographical information questionnaire completed by each provider.

Findings

- providers with post secondary school education obtained significantly higher DCHERs scores than did those with secondary school graduation or less education ($p < .05$);

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* Measures related to other parts of the research are not reported.

- providers whose post secondary school education was directly related to early childhood or elementary education received significantly higher DCHERS scores than those who had attended programs which were not directly related to child care ($p < .05$);

- providers who had specific provider training or orientation sessions, generally provided by the agency, did better on the DCHERS than did providers who had not received such training ($p < .05$). There was no difference between providers who had received other types of training, such as parent effectiveness or youth leadership, and those who had not received training;

- providers who had previously worked in the child care field, for example, as child care centre staff, nannies, or elementary school teachers, received significantly higher DCHERs scores than did those who had not or had worked in other social service areas ($p < .05$); and

- when the above analyses were repeated with the home visitors ratings, similar patterns appeared with respect to formal education ($p < .001$) and further education ($p < .001$) but not for provider training or previous employment.

Weakness

- the home visitors who rated the homes worked for the agency which employed the provider. Therefore, in many cases, they knew the individual. This could have introduced a bias.

Vandell, D., Henderson, V.K., & Wilson, K.S. (1988) **A longitudinal study of children with day care experiences of varying quality.** *Child Development, 59, 1286-1292.* *

Country of origin - United States (Texas)

Issue

The long-term impact of poor versus good quality child care on children's sociability with peers, compliance with adults, task orientation, impulse control, and affect when the children are eight-year olds.

Subject sample

20 white middle-class 8 year olds who represented all the children who could be tracked from a 55 child sample studied 4 years previously.

Program sample

3 "high quality" centres which varied from 3 "poor quality" centres in having caregivers with greater amounts of training in early childhood education, better equipment, a larger number of caregivers to children, smaller overall centre size, and smaller group sizes. The 3 "high quality" centres were non-profit while the other 3 were for-profit.

Measures

- a 45 minute videotape of the child interacting with 2 other previously unknown children during 4 standardized situations developed by Sitterlee (1984). In addition to one period of free play, the children had a task requiring cooperation, a second task requiring completion, and a third task requiring conflict resolution;
- each mother was asked to rate their child on a questionnaire designed to assess peer relationships, compliance, task orientation, and emotional well-being (Santrock & Warshak, 1979); and
- each child who participated in the videotape session was interviewed individually and asked to identify which of the other two best fitted the following categories: cooperative; disruptive; shy; fights; leads. Definitions for each type of behaviour were provided by the researcher.

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* This is a follow-up to Vandell & Powers (1988), also reported upon in this annotated bibliography.

Procedure

The videotaped sessions with peers were:

- coded by observers blind to the subject's child care experience into the following categories: friendly interactions; unfriendly interactions; and solitary play. Inter-coder agreement was .91, .75, and .87 respectively; and

- used to rate each child on a five-point scale on each of: social competence with peers; positive affect; ability to handle frustration; empathy; acceptance by peers; self-esteem; ability to negotiate conflict; and impulse control. These ratings were done by different people from the above who were also blind to the subject's child care history. Exact agreement for the ratings was .71 for each dimension, if a one-point deviation was allowed, 100% agreement was obtained for all variables.

Data analysis

A hierarchical regression procedure was used to separate out the effects of family social class and child care quality on the child's behaviour.

Findings

- there were no significant relationships between child care quality and family marital status, the age at which the child started child care, or the child's current after-school arrangements. Family social class was higher in families where the child was in "high quality" rather than "poor quality" child care ($p < .001$);

- with the impact of family class controlled, children from "high quality" child care spent more time in friendly interactions and less time in unfriendly interactions (both $p < .05$) than did children from the "poor quality" settings;

- observers rated children from higher quality centres as having more positive affect and showing greater social competence (both $p < .05$) than children from "poor quality" settings. Children from the poorer quality centres were more often identified by their peers as being shy ($p < .05$);

- there was no significant difference between the two groups on parental ratings;

- with the impact of family class controlled, children who had experienced more positive interactions with adults when they were in child care (Vandell & Powers, 1983) were rated at age 8 as more socially competent ($p < .05$), more accepted by peers ($p < .05$), more empathetic ($p < .001$), more capable of negotiating conflict ($p < .05$) and less impulsive ($p < .05$) than other children;

- with the impact of family class controlled, unoccupied behaviours at age 4 (Vandell & Powers, 1983) were negatively correlated with laboratory rating at age 8 of social competence, peer acceptance, ability to negotiate conflict, and ability to handle frustration (all $p < .05$); and

- there was a trend for children who had shown more negative peer interactions at age 4 (Vandell & Powers, 1983) to receive lower ratings on self-esteem at age 8.

Strengths

- the coding and the rating of the videotapes were done by two separate groups of people and both groups were blind to the subject's child care history; and

- the impact of the only external variable found to differentiate the two groups (family social class) was controlled for by the statistical analysis methodology.

Vandell, D.L., & Powers, C.P. (1983) **Day care quality and children's free play activities.** *American Journal of Orthopsychiatry, 53(3), 493-500.*

Country of origin - United States (Texas)

Issue

The impact of variations in quality, as defined by caregiver-to-child ratio, educational level of the caregivers, availability of toys and equipment, and square feet per child, on the child's behaviour with adults and with peers and the proportion of time spent by the child in solitary or unoccupied behaviours.

Subject sample

53 three- and four-year old children, all from intact two-parent families who had attended child care on an average of 2 years.

Program sample

- o two centres designated as "high quality". These had a mean caregiver-to-child ratio of 1:5, a mean density of 60 square feet per child, an abundant supply of toys, and caregivers who all had a bachelor's degree. One centre's class size was 13 and the other's was 24;
- o two centres designated as "medium quality". These had a mean caregiver-to-child ratio of 1:14, a mean density of 39.6 square feet per child, a good to excellent supply of toys, and caregivers who all had some college education but not all of whom had graduated. One centre's class size was 26 and the other's was 32; and
- o two centres designated as "poor quality". These had a mean caregiver-to-child ratio of 1:24, one had a density of 54 square feet per child and the other a density of 23 square feet per child, there was a poor to good supply of toys, and none of the caregivers had attended college. The class size in one centre was 38 and in the other was 90.

Measure

- o each child was observed in a randomly determined order for 16 minutes in the classroom during unstructured free play. Time sampling was used in which the behaviour was observed for 20 seconds and recorded for 25 seconds. The following were coded: solitary behaviour; unoccupied behaviour; positive behaviour with adults; positive vocalization with adults; positive behaviour with peers; positive vocalization with peers; and negative interaction with peers. During a pilot test inter-observer agreement varied from 96.8 - 99.6%.

Findings

- the mean frequency of solitary behaviour in "high", "medium" and "low" quality centres was 12.19, 17.42, and 19.90 respectively. The difference between the rates in the low and medium quality centres versus the high quality centre was statistically significant ($p < .05$);

- the mean frequency of unoccupied behaviour in the high, medium, and low quality centres was 2.0, 4.70, and 9.10 respectively. The difference between the rates in the low and medium quality centres versus the high quality centre was significant ($p < .05$);

- the mean frequency of positive behaviour towards adults in the high, medium, and low quality centres was .56, .21, and .10 respectively. The difference between the rates in the low and medium quality centres versus the high quality centre was significant ($p < .05$)

- the mean frequency of positive vocalizations towards adults in the high, medium and low quality centres was 7.38, 4.15, and 1.70 respectively. The difference between the rates in the low and medium quality centres versus the high quality centre was significant ($p < .05$);

- the variables were consistently ranked with the frequencies for the low and high quality centres at opposite ends of the continuum and the medium quality centres in the middle;

- there was no significant difference in the children's behaviour between the low and the medium quality centres; and

- there was no significant difference in the children's peer directed behaviour across the three settings. However, there was more negative interaction in the low quality centres.

West, S. (1988) **A study on compliance with the Day Nurseries Act at full-day child care centres in Metropolitan Toronto.** *A report for the Toronto Area Office, Ministry of Community and Social Services.*

Country of origin - Canada (Ontario)

Issue

The extent of centre compliance under the Day Nurseries Act. This is examined on the basis of differences associated with auspices.

Program sample

431 full-day child care centres, this represented all such centres in Metropolitan Toronto excluding those operated by the Municipality of Metropolitan Toronto and centres serving school-aged children only. The average capacity of the centres was 53 children, 100 centres had fewer than 32 and 51 had over 80 children. The auspices was:

- for-profit (commercial) = 42.2%;
- non-profit parent and/or community board = 33.9%;
- non-profit agency operated = 12.3%;
- non-profit operator-appointed board = 5.1%;
- church sponsored = 5.1%; and
- workplace sponsored = 1.4%.

Indicators of quality

Full licence with no conditions or requirements; no reports of complaints or serious occurrences; adequate staffing.

Measures

- the type of licence granted (full or provisional);
- whether or not the Ministry Program Advisor identified problems with one or more of the centre's: caregiver-to-child ratio; number of caregivers with an ECE diploma; playground; indoor equipment; physical plant; nutrition; sanitation; administration; medical issues; program; or staff development;
- staff turnover among supervisors;

- reports of serious occurrences;

- reports of complaints about the centre being made to the Ministry; and

- frequency of Program Advisor visits to the centre and the reason for them, e.g. licence visit; follow-up about requirements not met at the time of licensing; a complaint; a serious occurrence; to assist with program development; to provide administrative assistance; to introduce a new Program Advisor.

Data analysis

One-way analysis of variance and chi square tests. To compensate for differences in the number of centres under each auspices, the findings were reported as percentages. The two most common auspices were for-profit (commercial) and non-profit parent and/or community board. Comparisons are most valid between these two because of the similarity in sample size. Therefore, in most cases, the findings reported focus on these two auspices types.

Findings

- for-profit centres were less likely to meet the Act's requirements and therefore more likely to have a restricted licence than were centres under other auspices. Only 13.2% of for-profit versus 39.0% of non-profit parent/community board centres had a clear licence. The most common reasons for other than a clear licence were administrative problems such as lack of written policies, insufficient indoor equipment, playground problems, and below the required number of staff members with an ECE diploma;

- there was no significant difference in the number of serious occurrences at a centre on the basis of auspices or licence type;

- 33.5% of for-profit centres versus 27.5% of church sponsored, 22.&% of non-profit operator appointed board, and 13.0% of non-profit parent/community board had been the subject of a complaint to the Ministry in the previous year. The largest number of complaints lodged against the for-profit centres involved administrative policies or fees;

- over half the for-profit centres (53.8%) had been in violation of the Act's requirements in respect to caregiver-to-child ratios in the previous year versus 15.1% of the non-profit parent/community board centres. The groups with the next highest percentage of violations were the non-profit operator-appointed board centres and the church sponsored centres (each 45.4%);

- nearly half (49.5%) of the for-profit centres had been in violation of the Act's requirements in regard to the number of staff with an ECE diploma in the previous year versus 13.7% of the parent/community board centres. The centre types with the next highest proportion of violations were non-profit owner appointed board (45.5%) and church sponsored (40.9%);

- centre supervisor turnover in a 12-month period was similar for all auspices;
- 62.7% of the for-profit centres had received one or more Program Advisor visits in the previous 12 months for an issue related to quality control versus 57.3% of the non-profit owner appointed board, 54.7% of the church sponsored, and 44.3% of the non-profit parent/community board agencies; and
- there was no significant relationship between centre capacity and any other variable.

Weaknesses

- there was a very small sample of workplace, church sponsored, and non-profit operator appointed board centres. Therefore, any comparisons between these and the other three types of auspices could be skewed by sample size, especially when reporting findings as percentages;
- centres operated by Metropolitan Toronto were excluded. This introduces an unknown bias into the sample;
- the data on Program Advisor visits other than for licensing depended on the government official's notes or recollection; and
- compliance with the Act does not take into account important indicators of quality such as the type and volume of caregiver-child interaction.

Whitebook, M., Howes, C., Darrah, R., & Friedman, J. (1982) **Caring for the caregivers: Staff burnout in child care.** *In L. Katz (Ed.)* Current topics in early childhood education, *Vol. IV. Norwood, New Jersey: Ablex Publishing Corporation, 211-235.*

Country of origin - United States (California)

Issue

The impact of working conditions on caregiver job satisfaction and morale.

Subject sample

Staff members from 32 randomly selected centres with proportional representation from public, private, non-profit and for-profit agencies. The group involved 1/3 directors, 1/3 teachers, and 1/3 aides. Seventy percent had a bachelor's degree education or higher, 56% had been working in child care for over 5 years and only 5% had been child care providers for less than one year. The number of respondents from for-profit centres was 18, from private non-profit centres was 28, from public school settings was 23, and from other types of settings was 21.

Measure

- an opened-ended telephone interview administered outside of working hours.

Findings

- Two thirds of workers in public centres earned less than $500 per month versus one fifth of the workers in private centres;
- 41% of workers in for-profit centres received one or more of medical coverage, dental coverage, paid sick time, or two weeks or more vacation each year versus 76% in non-profit centres, 70% in public school, and 86% in other centres;
- 35% of the total sample worked in centres with a caregiver-to-child ratio greater than 1:10, however, 78% of the respondents from for-profit centres worked in situations where the ratio was greater than 1:10;
- the greatest sources of tension cited were low salaries and the amount of unpaid work (no percentage provided);
- the caregiver-to-child ratio, hours of direct work with children, mechanisms for input into centre decision-making, and flexibility of the centre's structure were all correlated with job satisfaction (no statistics provided);
- 44% of the workers in for-profit centres had been in their current centre for less than one year versus 39% in private non-profit centres, 29% in school settings, and 38% in other settings;

- o turnover was lowest in part-time programs, these tended to have higher salaries, better caregiver-to-child ratios, and less reported tension than full-time centres. Turnover rates were highest in the for-profit centres. These were the centres which tended to have the lowest salaries, the less favourable caregiver-to-child ratios, the worst reported working conditions, and the most reported tension. The most frequently stated reasons for turnover were low salary, unpaid overtime, and lack of career advancement (no statistics are provided for any of the above); and

- o the desired changes most frequently cited were: higher salaries; more benefits; increased job security; career mobility; better caregiver-to-child ratios; and more control over day-to-day decision-making.

Weaknesses

- o findings are sometimes cited as if they are statistically significant but no supporting statistic is provided; and

- o no information is provided about subject selection. If response was voluntary, this might introduce a bias.

Whitebook, M., Howes, C., & Phillips, D. (1990) **Who cares? Child care teachers and the quality of care in America**. *Final report of the National Child Care Staffing Study. Oakland, California.*

Country of origin - United States

Issues

- o the relationship between child care staff characteristics, adult work environments, and the quality of child care; and
- o the differences in child care quality, child care staff, and adult work environments in centres that vary with respect to accreditation status, the proposed 1980 federal standards, and auspices. *

Program sample

227 centres in five cities (Atlanta, Boston, Detroit, Phoenix, and Seattle). The states were selected to provide variety in regard to the level of state regulations, geographic location, and relative distribution of for-profit and non-profit centres. The final selection of centres was done through a stratified random sampling strategy to obtain a sample from different socioeconomic areas and from urban and suburban areas. In all, 37% of the centres were non-profit, non-church sponsored; 16% were non-profit, sponsored by a religious organization; 39% were independent, for-profit; and 8% were for-profit chain operations. Individual classrooms were randomly selected for a total of 85 (13%) infant, 151 (23%) toddler, 313 (49%) preschool, and 94 (15%) mixed age.

Subject sample

Two staff members, one teacher or teacher-director and one assistant teacher or aide from each participating classroom were randomly selected to be interviewed and observed. There were 865 teachers or teacher-directors (66% of the sample), and 444 assistant teachers or aides. In Atlanta only, 2 children were randomly selected from each participating classroom for observation and, for older preschoolers, formal testing. There were 92 infants, 57 toddlers, and 106 preschoolers.

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* The research also looked at caregiver demographic characteristics and compared its findings with those of the 1977 National Day Care Study (Ruopp et al.). These findings are not reported in this annotated bibliography.

Procedure

In each of the five cities director interviews were followed by classroom observation and then frontline staff interviews. The data were collected by people from the local child care community, each person trained in interview and observation techniques by the research team in a special four-day session. Inter-rater reliabilities were established to a criterion of 80% agreement before data collection started and, at mid-point, were tested and found to be above 85%.

In Atlanta, the above procedure was supplemented by observation of the children with each child observed for six five-minute blocks of time evenly distributed over a two-hour period. Infants and young toddlers were assessed for attachment security with the caregiver, sociability with the caregiver, aimless wandering, and peer play level. Older toddlers were assessed for the above plus personal maturity and adaptive language. Preschoolers were assessed for all of the above plus child-perceived and teacher-rated competence. Inter-observer agreement for the above measures was 85% or better.

Indicators of centre quality

- o scores on the Early Childhood Environment Rating Scale (for each preschool classroom) and the Infant-Toddler Environment Rating Scale (for infant and toddler classrooms). The items were collapsed to produce two subscales:
  - "appropriate caregiving" - child-adult interactions, caregiver supervision, and caregiver method of discipline
  - "developmentally appropriate activity "- items pertaining to materials, schedules, and activities;
- o classroom structure, namely: caregiver-to-child ratio; group size; number of adults; number of children; comparison between centre characteristics and the 1980 proposed federal guidelines (FIDCR); and whether or not the centre had been accredited by the National Academy for the Education of Young Children;
- o the adult environment as measured by items such as the availability of a separate adult area, wages and benefits, and opportunities for professional growth; and
- o the quality of the caregiver-child interaction as indicated by teacher scores on measures of sensitivity, harshness, detachment, and level of involvement with the children.

Measures

- o classroom observations;
- o interviews with the directors to obtain information such as the centre's auspice, goals, budget, staffing pattern, turnover, and the characteristics of the children and families served;

- interviews with each staff member to obtain information on personal background, child care experience, educational level, wages and benefits, job satisfaction, and professional satisfaction;

- the Early Childhood Environment Rating Scale (Harms & Clifford, 1980);

- the Infant-Toddler Environment Rating Scale (Harms et al., 1980);

- the Staff Sensitivity Scale (Arnett, in press). This measures sensitivity (e.g. warm, attentive), harshness (e.g. critical, threatens children), and detachment (e.g. low level of interaction);

- the Adult Involvement Scale (Howes & Stewart, 1987). This measures the amount and type of caregiver involvement from routine caregiving (e.g. touching the child without any verbal interaction) to intense caregiving (e.g. playing with the infant while changing the diaper);

- the Peer Play Scale (Howes, 1980). This measures the complexity of social pretend play as well as the volume of play;

- the Attachment Q-Set (Waters & Deane, 1985). This assesses the child's security of attachment to and sociability with caregivers;

- the Adaptive Language Inventory (Feagans & Farran, 1979);

- the Entwistle Scale of Personal Maturity (Entwistle et al., 1987);

- the teacher portion of the Pictorial Scale of Perceived Competence and Acceptance for Young Children (Harter & Pike, 1984). This identifies children with notably positive or negative perceptions of their own abilities;

- the child portion of the Pictorial Scale of Perceived Competence and Acceptance for Young Children (Harter & Pike, 1984). This involves the child's perception of his cognitive and physical competence and acceptance by peers; and

- the Peabody Picture Vocabulary Test (Dunn, 1984).

Findings

a) the impact of formal education or specific training

- the teacher's amount of formal education was the strongest predictor of sensitivity with all three age groups ($p < .001$); of harshness with infants and with preschoolers ($p < .001$) but not with toddlers; of detachment ($p < .001$); and of appropriate caregiving for toddlers and preschoolers ($p < .001$);

- the assistant teacher's or aide's level of formal education was the strongest predictor of sensitivity with toddlers ($p < .01$) and preschoolers ($p < .05$); and of harshness with preschoolers ($p < .01$);

- o the amount of child care specific training was the strongest predictor of detachment with toddlers for assistant teachers ($p < .05$) and appropriate caregiving for both teachers and assistants;

- o child care experience was not a predictor of caregiver behaviour at a significant level;

- o teachers with a bachelor's degree or higher scored higher on measures of sensitivity and appropriate caregiving and lower on detachment and harshness for all three age groups than did teachers with a lower level of formal education (all $p < .05$);

- o teachers with at least a bachelor level degree in early childhood education engaged in more appropriate caregiving with all age groups than did teachers whose early childhood education was at the vocational or secondary school level ($p < .01$);

- o teachers with at least a bachelor's degree in early childhood education were rated as more sensitive and less detached than those whose early childhood education was at the vocational or secondary school level ($p < .01$);

- o 53% of the teachers with a bachelor's degree or higher level of education had taken post secondary school courses in or graduated from an early childhood education program and 66% of those with an AA degree had taken some college level courses in early childhood education. Therefore, the caregivers with higher levels of formal education also tended to have had specialized early childhood education training at the college level;

- o teachers of infants, toddlers, and preschoolers with a bachelor's degree with or without specialized training, or teachers with no bachelor's degree but with specialized training at the college level, were rated as more sensitive, less harsh, and less detached than teachers with no BA and less than college level training in early childhood education or no BA and no training;

- o teachers with a BA plus college training in early childhood education, or no BA but early childhood education training at the college level were rated as providing more appropriate caregiving to infants and toddlers than teachers with a BA but no training in early childhood education or no BA and less than college level training; and

- o teachers with a BA with or without early childhood education training or early childhood education training at the college level were rated as providing more appropriate caregiving for preschoolers than teachers with no BA.

b) in-service training

- o teachers with 15 hours or more of current in-service training were found to engage in more appropriate caregiving ($p < .01$), to be more sensitive ($p < .001$) and less harsh ($p < .05$) than those with less than 15 hours of current in-service training.

c) adult work environment

- o the best predictor of job satisfaction was salary followed by paid preparation time. For staff members with young children, the availability of reduced fee child care was also a predictor of job satisfaction;
- o higher salaries were associated with viewing child care provision as a career, not just a job, feeling challenged by the work, and higher job commitment; and
- o teaching staff earning salaries at the lower end of the range left their jobs at twice the rate of those whose salaries were at the higher end of the continuum (54% versus 27% in a 6 month period).

d) characteristics of the centre

- o group size did not predict teacher behaviour;
- o centres which provided some overlap at change of shift were rated as providing more appropriate caregiving to infants and toddlers ($p < .01$) but not to preschoolers than centres which did not. Their teachers were also rated as more sensitive and less harsh (both $p < .01$);
- o classrooms with higher ratings for developmentally appropriate activities had more favourable caregiver-to child ratios and smaller group sizes (both $P < .05$);
- o classrooms with only one teacher in the room had teachers with lower appropriate caregiving scores than did classrooms with two teachers ($p < .01$ for infants and toddlers and $p < .001$ for preschoolers);
- o developmentally appropriate activities predicted appropriate caregiving for infants, toddlers, and preschoolers ($p < .001$ for each group); sensitivity with infants and preschoolers ($p < .001$) and toddlers ($p < .01$); and harshness with young infants ($p < .05$) and preschoolers ($p < .01$); and detachment with infants and preschoolers ($p < .01$) and young toddlers ($p < .05$) but not older toddlers; and
- o caregiver-to-child ratio predicted appropriate caregiving of infants, toddlers and preschoolers (all $p < .001$) and caregiver sensitivity with all ages ($p < .001$), harshness for young toddlers ($p < .001$) and preschoolers ($p < .01$), and caregiver detachment with infants and young toddlers ($p < .01$) and preschoolers ($p < .05$);

e) child functioning and development as a function of caregiver behaviour

- o children in centres with a high staff turnover in the previous 12 months spent more time in aimless wandering ($p < .001$) and had lower scores on the Peabody ($p < .01$) than did children in centres with a more stable staff group;
- o teacher ignoring was associated with higher amounts of aimless wandering and lower developmental levels of peer play (both $p < .001$) as well as a less secure attachment to the caregiver and lower perception by the child of his own competence (both $p < .05$);
- o non-responsive teachers were associated with lower developmental levels of peer play ($p < .001$) and lower perception by the child of his own competence ($p < .05$). Responsive teachers were associated with higher developmental levels of peer play ($p < .01$), lower levels of aimless wandering ($p < .001$), and higher child scores on the Adaptive Language Inventory ($p < .05$);
- o teacher sensitivity was associated with greater attachment to the caregiver ($p < .001$), greater sociability with the caregiver ($p < .01$), and higher child scores on both the Adaptive Language Inventory ($p < .01$) and the Peabody ($p > .05$);
- o detached teachers were associated with less attachment to the caregiver and less sociability with the caregiver (both $p < .001$), higher levels of aimless wandering ($p <: 05$), and lower scores on the Adaptive Language Inventory ($p < .05$);
- o harsh teachers were associated with more time spent in aimless wandering ($p < .001$) and less attachment to or sociability with the caregiver (both $p < .05$);
- o situations where there was "intense" teacher-child interaction (e.g. the caregiver played with the child while changing the diaper) were associated with high levels of peer play and lower levels of aimless wandering ($p < .001$) plus higher scores on the Peabody and higher teacher ratings of child competence (both $p < .05$); and
- o preschool classrooms with high rankings on appropriate caregiving were associated with higher developmental levels of peer play and higher scores on the Peabody (both $p < .05$).

f) the impact of compliance with the Federal Interagency Day Care Requirements (FIDCR)

- o There were 47 centres in the sample which met all the provisions of FIDCR and a few others which met two or three of the provisions.
- o centres meeting none of the FIDCR provisions had an annual staff turnover rate of 65% versus 32% for those meeting all provisions ($p < .05$) and 41% for those meeting 2 of the 3 provisions related to ratio, group size, and training;

- teachers in situations where all the FIDCR provisions were met reported greater job satisfaction than did those where none of the provisions were met. However, complete compliance with FIDCR was also associated with a perception of the job as requiring hard work and problems resolving conflicts between work and own family relationships;

- teachers in centres meeting FIDCR provisions had higher levels of formal education and more training in early childhood education than did those working in centres meeting none or only some of the provisions (both $p < .001$);

- centres which complied with all the FIDCR provisions had higher ratings of developmentally appropriate activity ($p < .01$), better caregiver-to-child ratios ($p < .001$) and smaller group sizes ($p < .05$ to .001, depending on the child age). They were also more likely to use overlapping shifts and less likely to have only one adult in a classroom (both $p < .01$);

- teachers in centres meeting all FIDCR provisions engaged in more appropriate caregiving ($p < .001$ for all ages), were more sensitive and less harsh (both $p < .01$); and

- children in centres meeting two or more of the FIDCR provisions were found to spend less time in aimless wandering ($p < .05$), to engage in higher developmental levels of peer play ($p < .05$), to have higher scores on the Peabody ($p < .05$), and higher perceptions of their own competence ($p < .001$).

g) the impact of accreditation by the National Academy for the Education of Young Children (N of only 14)

- 12-month staff turnover rates were 36% in centres with accreditation versus 52% in the other centres;

- teaching staff in accredited centres were found to have higher levels of satisfaction with their supervisor ($p < .01$), to be more likely to perceive their director as democratic ($p < .001$), but to have a lower level of satisfaction with their ability to resolve conflict between their work and their personal family life;

- teachers in accredited centres had larger amounts of formal education ($p < .001$) and greater amounts of training in early childhood education ($p < .001$) than did teachers in other centres;

- teachers in accredited centres engaged in more appropriate behaviour with infants and toddlers (both $p < .01$) and preschoolers ($p < .001$), and were more sensitive and less harsh with children of all ages (both $p < .001$) than teachers in centres which did not have accreditation; and

- accredited centres ranked higher on developmentally appropriate activity ($p < .001$ in all age groups), had better caregiver-to-child ratios for toddlers and preschoolers (both $p < .05$), and were more likely to have classrooms with more than one adult and to use overlapping shifts (both $p < .01$).

h) auspices

- both 6-month and 12-month staff turnover rates were higher in for-profit than they were in non-profit centres ($p < .001$ and $p < .01$ respectively). Annual turnover in for-profit chains was 74% versus 51% in independent for-profit centres;

- non-profit centres provided better working conditions than did for-profit centres at a statistically significant level in all 12 areas that were examined;

- teachers in non-profit centres were more likely to view their work as a career, not just a job, than were teachers in for-profit centres ($p < .01$). Teachers in for-profit chain operations were the least satisfied with their salaries ($p < .001$), the variety and challenge of their work ($p < .05$), their advancement opportunities ($p < .05$), and their directors ($p < .001$). They also had the least feeling of commitment ($p < .01$);

- formal education levels were higher for teachers in non-profit centres than for teachers in either type of for-profit centre or church sponsored centres ($p < .001$). The same picture with the same degree of significance emerged for teacher training in early childhood education;

- non-profit programs had a better ranking on developmentally appropriate activity than did independent for-profit centres ($p < .001$) but not better than chain for-profit centres;

- non-profits had more favourable caregiver-to-child ratios than either type of for-profit centre ($p < .05$ to $.001$, depending on the age group), were more likely to have two teachers per room ($p < .001$) and to have overlapping shifts ($p < .001$);

- teachers in non-profit centres were more likely to engage in appropriate caregiving than were teachers in for-profit or church sponsored centres ($p < .001$ for all ages). Teachers in both types of for-profit centres were more harsh and less sensitive than teachers in other types of centres with all age groups (both $p < .01$);

- children in non-profit centres showed greater attachment to their caregiver ($p < .05$), spent less time in aimless wandering ($p < .05$), showed a higher developmental level of peer play ($p < .05$), and had higher scores on the Peabody ($p < .05$) than did children in either type of for-profit centre; and

- a higher percentage of non-profit centres' budgets was spent on teaching staff than was the case with for-profit centres ($p < .001$). Centres allocating a greater share of their funds to teaching staff had higher appropriate caregiving scores ($p < .05$ for all ages) and developmentally appropriate activity scores ($p < .05$ for infants and toddlers and $p < .01$ for preschoolers).

i) predictors of quality across centre characteristics

- auspices was the strongest predictor for appropriate caregiving for all ages, developmentally appropriate activity with infants and toddlers, caregiver sensitivity, caregiver harshness, caregiver detachment, and caregiver-to-child ratio;
- the second strongest predictor for infants and toddlers was compliance with FIDCR provisions;
- the second strongest predictor for preschoolers was NAEYC accreditation; and
- the presence of government funding had little predictive value. Government subsidies did not account for differences in quality. Whether or not non-profit centres received government subsidies they obtained higher scores on measures of quality than did either type of for-profit centre.

Strengths

- statistically controlled for the effect of family variables such as parent education; and
- used factor loadings with the Early Childhood Environmental Rating Scale.

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